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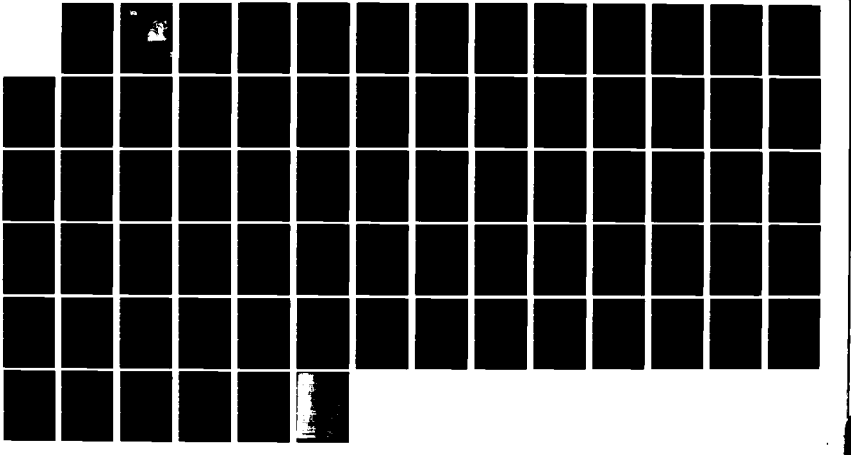

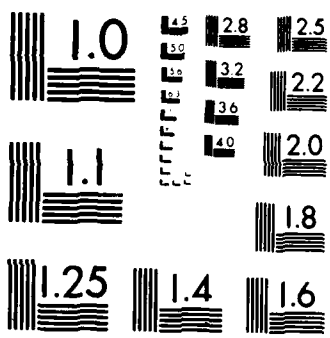

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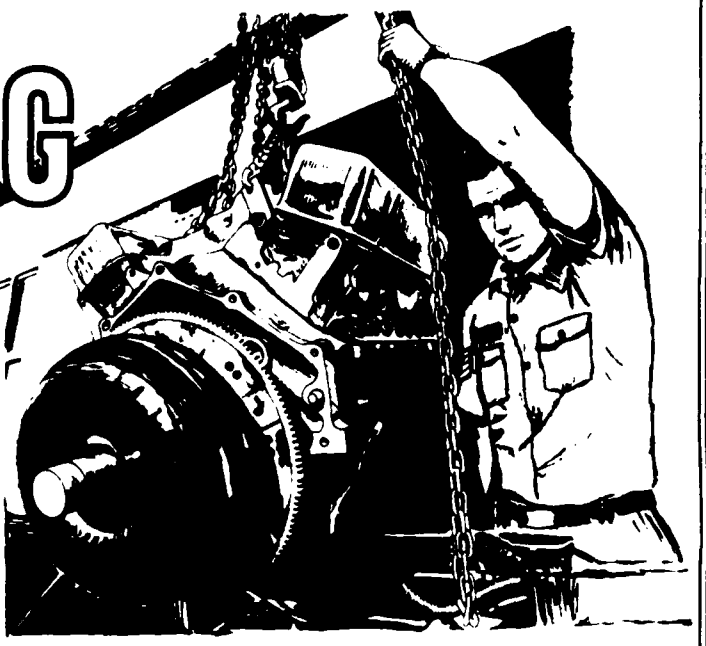

SPECIAL VEHICLE MECHANIC SPECIALTIES

AFSs 472X1A/B/C/D

AFPT 90-472-442

APRIL 1983

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
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PREFACE

This report presents the results of a detailed Air Force Occupational Survey involving the training requirements for first-enlistment personnel in the Special Vehicle Mechanic (AFS 472X1A/B/C/D) specialty. The project was initiated in response to a need for current job information in the career field. Authority for conducting occupational surveys is contained in AFR 35-2. Computer printouts from which this report was produced are available for use by operational and training officials.

Chief Master Sergeant Robert M. Wing, Inventory Development Specialist, developed the survey instrument for this project. Ms Lynn D. Baker and Ms Elena J. Weber analyzed the data and wrote the final report. Computer products for this report were generated by Mr Bill Feltner and Ms Olga Velez. This report has been reviewed and approved by Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladder Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Center, Randolph AFB, Texas 78150.

Copies of this report are distributed to the organizations shown on page i. Additional copies may be obtained by contacting the USAF Occupational Measurement Center, attention to the Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150 (OMYX, AUTOVON 487-6811).

This report has been reviewed and is approved.

PAUL T. RINGENBACH, Colonel, USAF
Commander
USAF Occupational Measurement Center

WALTER E. DRISKILL, Ph.D.
Chief, Occupational Analysis Branch
USAF Occupational Measurement Center

SUMMARY OF RESULTS

1. Survey Objective: The purpose of this report is to provide occupational survey data to use in assessing current Special Vehicle Mechanic training documents and programs involving first-enlistment 472X1A/B/C/D personnel.

2. Survey Coverage: Training emphasis and task difficulty ratings were collected from senior AFSC 47251A/B/C/D (Special Vehicle Mechanic) personnel and AFSC 47271 (Special Vehicle and Base Vehicle Equipment Supervisor) members to help identify both common and vehicle-specific training requirements.

3. Analysis of First-Enlistment Personnel: First-enlistment personnel in each of the four shredouts perform a wide variety of nonvehicle-specific tasks. The Firetruck (AFS 472X1A) and Refueling Vehicle (AFS 472X1B) first-term mechanics specialize on vehicles and tasks consistent with their shredout designation. The AFS 472X1C (Materials Handling Equipment Mechanic) members perform materials handling equipment-specific tasks along with the nonvehicle-specific tasks. Although a large percentage of the 472X1C members maintain materials handling equipment, some repair other types of vehicles and equipment. The majority of 472X1D (Towing and Servicing Vehicle Mechanic) members, on the other hand, primarily perform tasks common to all types of vehicles, with very few of the members performing the towing and servicing vehicle-specific tasks. Additionally, these 472X1D members maintained not only towing and servicing vehicles but a wide variety of other types of vehicles and equipment. Only minor differences between first-enlistment MAJCOM groups across the different shredouts were found on the tasks performed and vehicles maintained.

4. Training Analysis: Overall, current STSs for 472X1A/B/C/D and 47271 personnel provide good coverage of most functions performed, with some areas in need of review. Most common and shredout specific objectives of the POI were also supported by survey data, although some objectives needed review.

5. Summary and Implications: Before training documents and programs are revised, the issue of cross-utilization among the vehicle maintenance specialties should be addressed. As stated in the August 1982 AFS 472XX OSR, the greatest utilization problem for consistency with career ladder structure concerns AFS 472X0 (Base Vehicle Equipment Mechanic) and 472X1D (Special Vehicle Mechanic-Towing and Servicing Vehicles) members. The cost-effectiveness of initial specialized training, based on the ladder and shred designation, is brought into question for AFSs 472X0 and 472X1D because of the way in which these members are utilized. A Utilization and Training workshop on all vehicle maintenance specialties may be necessary to address these utilization issues and to assess current and projected training needs and programs.

TRAINING REPORT
SPECIAL VEHICLE MECHANIC SPECIALTIES
(AFSs 472X1A, 472X1B, 472X1C, AND 472X1D)

INTRODUCTION

This is a report of a training analysis of the Special Vehicle Mechanic (AFSs 472X1A/B/C/D) specialties completed by the Occupational Analysis Branch, USAF Occupational Measurement Center, in March 1983. The survey was initiated to obtain current task and background data for use in the evaluation and management of training programs for these career ladders. Analyses of the job structure, DAFSC groups, AFR 39-1 specialty descriptions, job satisfaction, CONUS and overseas groups, MAJCOM groups, and utilization of Vehicle Maintenance personnel were covered in an Occupational Survey Report (OSR) published in August 1982. Separate training reports on Base Vehicle Equipment Mechanics (AFS 472X0), General Purpose Vehicle Mechanics (AFS 472X2), and Vehicle Body Mechanics (AFS 472X3) are also available.

Background

The Vehicle Maintenance career field (excluding AFS 472X4-Vehicle Maintenance Control and Analysis), currently consists of seven separate AFSCs through the 5-skill level. These seven AFSs merge into two AFSCs at the 7-skill level (AFSC 47271 - Special Vehicle and Base Vehicle Equipment Supervisor and AFSC 47275 - General Purpose Vehicle and Body Maintenance Supervisor); additionally, there is a common 47299 (Vehicle Maintenance Superintendent) and CEM Code 47200 (Vehicle Maintenance Manager). As described in AFR 39-1, Special Vehicle Mechanics (AFSs 472X1A/B/C/D) are responsible for maintaining different types of special purpose vehicles and equipment, depending on the shredout they hold. The vehicle and equipment maintained by shred are:

A-Shred - Firetrucks
B-Shred - Refueling Vehicles
C-Shred - Materials Handling Equipment
D-Shred - Towing and Servicing Vehicles

AFSs 472X1A, 472X1B, 472X1C, and 472X1D, along with Base Vehicle Equipment Mechanics (AFS 472X0), are supervised by AFSC 47271 personnel.

Training for Special Vehicle Mechanics is conducted at Chanute Technical Training Center, Illinois, and is divided into common areas of vehicle maintenance training and shred-specific training. Members of the 472X1/A/B/C/D (Special Vehicle Mechanic) specialties receive their 3-skill level upon completion of requirements for both the common training and the

specific training for their shred. The common training, Course C3ABR47231A/B/C/D, Special Vehicle Mechanic, lasts 30 days and includes: administrative and technical publications; handtools; principles and maintenance of gasoline engines; gasoline engine components; cooling, lubrication, air, fuel, exhaust and electrical systems; construction of basic electrical circuits; testing of batteries; principles and maintenance of starting, AC/DC charging, and emission control systems; gasoline engine tuneup; principles and maintenance of diesel engines and fuel systems; lighting and electrical warning systems; clutches; standard transmissions; hydraulics; torque converters; fluid couplings; automatic transmissions; U-joints; propeller shafts; conventional differentials; axles; transfer cases; suspension systems; brake systems; and steering systems.

The additional training that personnel in each shred receive is specific to the unique vehicles and equipment maintained. AFS 472X1A (Firetruck Mechanic) personnel attend Course C3ABR47231A (Special Vehicle Mechanics, Crash/Fire Vehicles) for an additional 27 days of training on the maintenance and repair of systems and components unique to crash rescue vehicles. Course C3ABR47231B (Special Vehicle Mechanic, Refueling Vehicles) is attended by AFS 472X1B (Refueling Vehicle Mechanic) members. In this course, AFS 472X1B (Refueling Vehicle Mechanic) personnel receive an additional 11 days of training on maintenance and repair of systems and components unique to refueling vehicles. Members in the 472X1C (Materials Handling Equipment Mechanic) specialty attend Course C3ABR47231C (Special Vehicle Mechanic, Materials Handling Vehicles) and receive an additional 18 days of training on repair and maintenance of systems and components unique to materials handling vehicles. Finally, the 472X1D (Towing and Servicing Vehicle Mechanic) members attend Course C3ABR47231D (Special Vehicle Mechanic, Towing and Servicing Vehicles) for an additional 14 days of training. In this course, AFS 472X1D (Towing and Servicing Vehicle Mechanic) personnel receive training on maintenance and repair of systems and components unique to towing and servicing vehicles.

Objectives

This training report provides task data training managers can use in conjunction with career ladder documents to assess the effectiveness of Special Vehicle Mechanic (AFSs 472X1A/B/C/D) training. Topics discussed in this report include: (1) survey methodology; (2) tasks performed, vehicles maintained, and tools and equipment used by first-enlistment 472X1A/B/C/D (Special Vehicle Mechanic) personnel; (3) comparison of MAJCOM first-enlistment differences; and (4) assessment of the 3- and 5-skill level 472X1A/B/C/D STS, the 47271 STS, and the 472X1A/B/C/D POIs.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-472-442, dated April 1981. The job inventory contains task statements covering seven Vehicle Maintenance career ladders (AFSs 472X0 - Base Vehicle Equipment Mechanic, 472X1A/B/C/D - Special Vehicle Mechanic, 472X2 - General Purpose Vehicle Mechanic, and 472X3 - Vehicle Body Mechanic) plus the Vehicle Maintenance Superintendent (AFSC 47299) and the Vehicle Maintenance Manager (CEM Code 47200). A preliminary task list was prepared after reviewing pertinent career ladder publications and directives, tasks from previous inventories, and data from the last OSR. This preliminary task list was refined and validated through personal interviews with 17 subject-matter specialists at three bases. The resulting job inventory contained a comprehensive listing of 773 tasks grouped under 23 duty headings and a background section containing such information as grade, TAFMS, job title, work area, equipment maintained, and job interest.

Job Inventory Administration

During the period April through October 1981, Consolidated Base Personnel Offices (CBPO) in operational units worldwide administered the inventory to job incumbents with AFSs 472X0 (Base Vehicle Equipment Mechanic), 472X1A/B/C/D (Special Vehicle Mechanic), 472X2 (General Purpose Vehicle Mechanic), 472X3 (Vehicle Body Mechanic), 47299 (Vehicle Maintenance Superintendent), and CEM Code 47200 (Vehicle Maintenance Manager). These job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL).

Each inventory respondent first completed an identification and biographical information section, then checked each task performed in their current job. After checking all tasks performed, each member then rated each of these tasks on a nine-point scale indicating the relative time spent on that particular task as compared to all other tasks checked. The ratings ranged from one (very small amount of time spent) through five (about average time spent) to nine (very large amount of time spent).

To determine relative time spent for each task checked by a respondent, all of an incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

The information collected was used to compare personnel based on the types of tasks they performed and the relative amount of time they spend performing the tasks. Job inventory data provided the basis for analyzing the job structure of the Vehicle Maintenance specialties and making comparisons between DAFSC groups, CONUS-overseas groups, MAJCOM groups,

and job satisfaction indicators. A summary of the analyses of the data is presented in the Occupational Survey Report (OSR) for the Base Vehicle Equipment (AFS 472X0), Special Vehicle (AFSs 472X1A/B/C/D), General Purpose Vehicle (AFS 472X2), and Vehicle Body Mechanic (AFS 472X3) career ladders, AFPT 90-472-442, dated August 1982. In addition to using job inventory data for the OSR, percent members performing data for first-enlistment 472X1A/B/C/D (Special Vehicle Mechanic) specialty groups are presented in this training report along with recently collected task factor ratings.

Task Factor Administration

Due to the complexity and size of this occupational survey, the decision was made not to collect task difficulty and training emphasis data at the same time as tasks performed data were collected. For use in this report, task difficulty and training emphasis booklets were administered to selected senior 47251A/B/C/D (Special Vehicle Mechanic) and 47271 (Special Vehicle and Base Vehicle Equipment Supervisor) during the period of April through August 1982. This information is used in a number of different analyses discussed in more detail within this report.

Task Difficulty. Each person completing a task difficulty booklet was asked to rate all inventory tasks on a nine-point scale (from extremely low to extremely high) as to relative difficulty. Difficulty is defined as the length of time required by an average member to learn to do the task. For the purposes of this report, separate ratings for the 472X1A (Firetruck Mechanic), 472X1B (Refueling Vehicle Mechanic), 472X1C (Materials Handling Equipment Mechanic), and 472X1D (Towing and Servicing Vehicle Mechanic) career ladders, plus the ratings for the 47271 (Special Vehicle and Base Vehicle Equipment Supervisor) specialty, were used. To obtain separate task difficulty ratings for each of the Special Vehicle Mechanic career ladders, (AFSs 472X1A/B/C/D), ratings from senior 5-skill level respondents in each career ladder, plus ratings from 47271 members who supervised personnel within the particular career ladder, were used. Ratings from all 47271 members were used to obtain task difficulty ratings for the 47271 specialty. The number of raters and interrater reliability (as assessed through components of variance of standard group means) for each Special Vehicle Mechanic career ladder (AFSs 472X1A/B/C/D) and for the 47271 specialty are shown in Table 1. Interrater agreement indices were all .94 or above, indicating very high agreement among raters. Ratings were adjusted so tasks of average difficulty would have a 5.00 rating. The resulting data is essentially a rank ordering of tasks indicating the degree of difficulty for each task in the inventory.

Training Emphasis. Individuals completing training emphasis booklets were asked to rate tasks on a ten-point scale from no training required to extremely heavy training required. Training emphasis is a rating of which tasks require structured training for first-term personnel. Structured training is defined as training provided at resident technical schools, field training detachments (FTD), mobile training teams (MTT), formal OJT, or any other organized training method. For the purposes of this report, separate

TABLE 1

TASK DIFFICULTY INTERRATER RELIABILITIES FOR THE SPECIAL VEHICLE MECHANIC CAREER LADDERS (AFSs 472X1A/B/C/D) AND 47271 SPECIALTY

CAREER LADDER/SPECIALTY	NUMBER OF TASK DIFFICULTY RATERS	INTERRATER RELIABILITY
472X1A	33	.95
472X1B	30	.94
472X1C	54	.96
472X1D	51	.96
47271	70	.96

TABLE 2

TRAINING EMPHASIS INTERRATER RELIABILITIES FOR THE SPECIAL VEHICLE MECHANIC CAREER LADDERS (AFSs 472X1A/B/C/D)

CAREER LADDER	NUMBER OF TRAINING EMPHASIS RATERS	INTERRATER RELIABILITY
472X1A	60	.96
472X1B	56	.95
472X1C	92	.97
472X1D	93	.97

ratings for the 472X1A (Firetruck Mechanic), 472X1B (Refueling Vehicle Mechanic), 472X1C (Materials Handling Equipment Mechanic), and 472X1D (Towing and Servicing Vehicle Mechanic) were used. To obtain separate training emphasis ratings for each of the Special Vehicle Mechanic career ladders (AFSs 472X1A/B/C/D), rating from senior 5-skill level respondents in each career ladder, plus ratings from 47271 members who supervised personnel within the particular career ladder, were used. The number of raters and interrater reliability (as assessed through components of variance of standard group means) for each Special Vehicle Mechanic (AFSs 472X1A/B/C/D) career ladder are shown in Table 2. All interrater reliabilities were .95 or above, indicating good agreement among raters as to which tasks required some form of structured training and which did not.

Like task difficulty, training emphasis ratings provide objective information which should be used along with percent members performing data when making training decisions. Percent members performing data provide information on who and how many personnel perform the tasks. Task difficulty ratings help make decisions on which tasks may require more training time, and training emphasis indicates the tasks which are important in first-enlistment training programs. Using these factors in conjunction with appropriate training documents and directives, career field managers can tailor training programs to accurately reflect the needs of the user by more effectively determining when, where, and how to train first-enlistment 472X1A/B/C/D (Special Vehicle Mechanic) airmen.

Survey Sample

As indicated previously, the administration of the AFS 472XX job inventory, task difficulty, and training emphasis booklets involved three separate survey samples. Tables 3 through 6 reflect the percentage distribution, by major command, of assigned personnel in the 472X1A/B/C/D (Special Vehicle Mechanic) career ladders, as of the first half of FY 1982. Also presented in this table is the percent distribution, by major command, of respondents in the final task difficulty and training emphasis samples.

TABLE 3

COMMAND DISTRIBUTION OF 472X1A (FIRETRUCK MECHANIC)
TASK DIFFICULTY AND TRAINING EMPHASIS RATERS

COMMAND	472X1A* PERCENT OF ASSIGNED (N=273)	47271 PERCENT OF ASSIGNED (N=379)	PERCENT OF TASK DIFFICULTY RATERS (N=33)	PERCENT OF TRAINING EMPHASIS RATERS (N=60)
TAC	23	21	12	18
SAC	23	18	27	25
USAFE	18	19	18	22
MAC	11	12	10	13
PACAF	9	9	18	3
AAC	5	4	9	7
ATC	5	9	12	8
AFSC	2	3	9	2
OTHER	4	5	3	2
TOTAL	100	100	100	100

*AFSC 472X1A INCLUDES ALL 3- AND 5-SKILL LEVEL PERSONNEL

TABLE 4

COMMAND DISTRIBUTION OF 472X1B (REFUELING VEHICLE MECHANIC)
TASK DIFFICULTY AND TRAINING EMPHASIS RATERS

COMMAND	472X1B* PERCENT OF ASSIGNED (N=282)	47271 PERCENT OF ASSIGNED (N=379)	PERCENT OF TASK DIFFICULTY RATERS (N=30)	PERCENT OF TRAINING EMPHASIS RATERS (N=56)
TAC	21	21	24	21
SAC	1	18	20	23
USAFE	21	19	10	25
MAC	13	12	10	9
PACAF	7	9	10	4
AAC	5	4	3	4
ATC	4	9	13	5
AFSC	2	3	3	7
OTHER	6	5	7	2
TOTAL	100	100	100	100

*AFSC 472X1B INCLUDES ALL 3- AND 5-SKILL LEVEL PERSONNEL

TABLE 5

COMMAND DISTRIBUTION OF 472X1C (MATERIALS HANDLING EQUIPMENT MECHANIC) TASK DIFFICULTY AND TRAINING EMPHASIS RATERS

COMMAND	472X1C* PERCENT OF ASSIGNED (N=391)	47271 PERCENT OF ASSIGNED (N=379)	PERCENT OF TASK DIFFICULTY RATERS (N=54)	PERCENT OF TRAINING EMPHASIS RATERS (N=92)
TAC	17	21	18	24
SAC	11	18	18	18
USAFE	14	19	17	26
MAC	37	12	17	18
PACAF	8	9	13	5
AAC	5	4	2	4
ATC	3	9	9	3
AFSC	2	3	4	1
OTHER	3	5	2	1
TOTAL	100	100	100	100

*AFSC 472X1C INCLUDES ALL 3- AND 5-SKILL LEVEL PERSONNEL

TABLE 6

COMMAND DISTRIBUTION OF 472X1D (TOWING AND SERVICING VEHICLE MECHANIC)
TASK DIFFICULTY AND TRAINING EMPHASIS RATERS

COMMAND	472X1D* PERCENT OF ASSIGNED (N=324)	47271 PERCENT OF ASSIGNED (N=379)	PERCENT OF TASK DIFFICULTY RATERS (N=51)	PERCENT OF TRAINING EMPHASIS RATERS (N=93)
TAC	24	21	22	23
SAC	0	18	25	25
USAFE	13	19	23	24
MAC	9	12	6	13
PACAF	10	9	14	6
AAC	3	4	—	3
ATC	4	9	6	4
AFSC	2	3	—	1
OTHER	5	5	4	1
TOTAL	100	100	100	100

*AFSC 472X1D INCLUDES ALL 3- AND 5-SKILL LEVEL

ANALYSIS OF FIRST-ENLISTMENT PERSONNEL

Before efficient and cost-effective training programs can be designed for a career ladder, the jobs and tasks performed by personnel within the career ladder must be defined. Of particular importance are the jobs and tasks performed by first-enlistment personnel, since they are the "target" for basic skills training. Thus, this report will focus on the tasks performed by first-enlistment personnel.

To determine the basic functions performed by first-enlistment (1-48 months TAFMS) Special Vehicle Mechanics (AFSs 472X1A/B/C/D), an analysis of the tasks, jobs, vehicles maintained, and tools and equipment used by these members was performed. Additionally, since major command (MAJCOM) assignment is another possible dimension along which jobs performed by respondents could vary, a comparison of the tasks performed and vehicles maintained by various first-enlistment MAJCOM groups was made. These data, used in conjunction with training emphasis and task difficulty ratings, can help identify training needs for first-term Special Vehicle Mechanics.

The commonality between the jobs performed by first-enlistment members in each of the four Special Vehicle Mechanic (AFSs 472X1A/B/C/D) specialties occurs mainly on the nonvehicle-specific tasks performed. Generally, all first-enlistment members in each of these specialties perform basically a technical job, with very little of their job time being devoted to supervisory or managerial duties. A large part of their job involves removing, installing, adjusting, and inspecting parts and components on vehicle electrical systems. All AFSs 472X1A/B/C/D (Special Vehicle Mechanic) first-enlistment members also perform minor repair work on other vehicle systems such as, adjusting brakes, belts, and carburetors; servicing air cleaners, oil systems, and drive belts; and lubricating vehicles (see Table 7 for a more comprehensive display of representative tasks performed by all first-enlistment Special Vehicle Mechanics). In addition to the commonality found between these specialties on the nonvehicle-specific tasks performed, there is some overlap between some of these AFSs on the vehicles maintained (see Tables 8 through 10). Further, 93 percent or more of the first-enlistment members in each of the four shredouts indicated using maintenance tools or equipment in the performance of their present job. The specific types used by members in each of the shredouts are displayed in Table 11 and are furnished to assist trainers in assessing which types of tools and equipment need to be included in training programs. The specific differences between specialties are discussed in the following paragraphs.

AFS 472X1A (Firetruck Mechanic) First-Enlistment Personnel

Tasks and Jobs Performed. In addition to performing many of the nonvehicle-specific tasks, AFS 472X1A (Firetruck Mechanic) first-enlistment personnel perform tasks specific to fire and crash fire-fighting vehicles. All of the 44 fire and crash firefighting vehicle-specific tasks listed in the inventory were performed by 30 percent or more of these first-term members. As shown in Table 12, these tasks involved adjusting, removing, installing, and inspecting firefighting systems and system components plus isolating malfunctions in various firefighting systems.

TABLE 7

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT (1-48 MONTHS TAFMS)
SPECIAL VEHICLE MECHANICS (AFSs 472X1A/B/C/D)
(PERCENT MEMBERS PERFORMING)

TASKS		AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
G193	LUBRICATE VEHICLES	81	75	86	88
H215	ADJUST ENGINE DRIVE BELTS	94	90	89	86
H219	INSPECT ENGINE PARTS	73	76	80	77
H227	REMOVE OR INSTALL ENGINE DRIVE BELTS	85	81	81	84
H244	SERVICE AIR CLEANERS	98	88	95	94
H245	SERVICE ENGINE DRIVE BELTS	80	80	80	80
H246	SERVICE ENGINE OIL SYSTEMS	91	79	87	83
I257	ADJUST IGNITION POINTS USING FEELER GAUGES	89	89	92	90
I265	INSPECT BATTERIES	79	79	92	83
I266	INSPECT CHARGING SYSTEMS	80	81	88	84
I267	INSPECT IGNITION SYSTEMS	79	80	88	79
I268	INSPECT LIGHTING SYSTEMS	86	81	88	87
I269	INSPECT STARTING SYSTEMS	83	80	88	83
I270	INSPECT WARNING SYSTEMS	81	73	70	75
I273	ISOLATE CHARGING SYSTEMS MALFUNCTIONS	75	72	79	77
I279	ISOLATE STARTER SYSTEMS MALFUNCTIONS	74	70	81	80
I282	PERFORM BATTERY HYDROMETER TESTS	85	78	87	84
I287	REMOVE OR INSTALL ALTERNATORS	86	88	87	84
I288	REMOVE OR INSTALL BATTERIES	91	95	94	92
I293	REMOVE OR INSTALL ELECTRICAL SYSTEM SWITCHES	86	74	87	83
I297	REMOVE OR INSTALL GENERATORS OR STARTER MOTORS	75	75	80	81
I298	REMOVE OR INSTALL IGNITION COILS	76	73	85	85
I299	REMOVE OR INSTALL IGNITION POINTS	81	83	90	88
I307	REMOVE OR INSTALL SOLENOIDS	77	75	86	80
I308	REMOVE OR INSTALL SPARK PLUGS	92	92	95	92
I311	REMOVE OR INSTALL VEHICLE LIGHT ASSEMBLIES	80	77	84	76
I314	REMOVE OR INSTALL VOLTAGE REGULATORS	70	77	79	80
I315	SERVICE BATTERIES	81	71	91	83
I317	SET IGNITION TIMING	79	76	89	75
K350	ADJUST CARBURETOR FUEL MIXTURES	83	73	86	74

TABLE 7 (CONTINUED)

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT (1-48 MONTHS TAFMS)
SPECIAL VEHICLE MECHANICS (AFSs 472X1A/B/C/D)
(PERCENT MEMBERS PERFORMING)

TASKS		AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
K355	ADJUST THROTTLE LINKAGES	75	88	81	76
K378	REMOVE OR INSTALL CARBURETORS	76	74	83	80
K395	SERVICE FUEL FILTERS	81	84	85	81
L423	REMOVE OR INSTALL HEATING OR COOLING SYSTEM HOSES	77	77	81	79
L424	REMOVE OR INSTALL RADIATORS	77	73	86	78
L430	TEST STRENGTH OF ANTIFREEZE SOLUTIONS	75	80	77	79
N480	INSPECT DRIVE SHAFT COMPONENTS	77	72	70	72
N484	PACK WHEEL BEARINGS	87	86	88	87
N499	REMOVE OR INSTALL FRONT WHEEL BEARINGS	79	74	81	81
0522	ADJUST PARKING BRAKES	82	84	96	89

TABLE 8

GENERAL PURPOSE VEHICLES MAINTAINED
(PERCENT MEMBERS MAINTAINING)

VEHICLE	FIRST-ENLISTMENT PERSONNEL			
	AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
AMBULANCES	13	5	20	19
AMBULANCES, TRUCKS	12	6	17	22
RUBBER-TIRED ARMORED PERSONNEL VEHICLES	8	4	18	42
TRACKED ARMORED PERSONNEL VEHICLES	4	3	11	17
BUSES	17	9	27	31
CARGO TRUCKS, 4X2	20	13	28	33
CARGO TRUCKS, 4X6	10	8	26	24
CARGO TRUCKS, 6X6	10	5	29	19
JEEPS	25	7	25	23
LOW BED TRAILERS	8	7	32	32
MINIBUS VEHICLES	7	5	18	21
PICKUP TRUCKS, 4X2	58	21	37	44
PICKUP TRUCKS, 4X4	52	12	41	40
STAFF CARS OR SEDANS	21	9	21	31
STEP-VAN TRUCKS	20	7	30	34
TRUCK-TRACTOR TRAILERS	38	9	41	38
TRUCK-TRACTORS, 6X4	24	7	24	28
TRUCK-TRACTORS, 6X6	8	6	21	22
TWO-WHEEL CARGO TRAILERS	8	7	23	15
UTILITY TRUCKS, 4X4	13	8	31	40
VAN TRUCKS	18	8	28	27
WEASELS	5	3	6	10

TABLE 9

BASE VEHICLES AND EQUIPMENT MAINTAINED
(PERCENT MEMBERS MAINTAINING)

VEHICLE OR EQUIPMENT	FIRST-ENLISTMENT PERSONNEL			
	AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
AIR BLAST SNOW SWEEPERS	10	5	15	38
AIR JET VACUUM SWEEPERS	7	5	26	47
AGGREGATE DRIERS	4	3	4	8
AGGREGATE SPREADERS	6	4	6	12
ASPHALT DISTRIBUTORS	6	4	11	25
ASPHALT SPREADERS-FINISHERS	5	4	10	15
BACKHOES	11	4	32	51
CLAMSHELL DRAGLINES	5	3	8	10
COAL/AGGREGATE CONVEYORS	5	4	7	8
COMPACTORS	4	4	8	12
CONCRETE MIXERS	5	4	16	24
CONCRETE TRAVEL MIXERS	4	4	9	10
CONCRETE VIBRATORS	4	4	8	11
CRAWLER MOUNTED DITCHERS	6	3	12	20
DECONTAMINATION TRUCKS	6	3	14	22
DIESEL LOCOMOTIVES	4	4	8	8
DUMP TRUCKS	20	6	52	73
DUMPSTERS	6	5	14	16
EARTH AUGERS	4	4	12	24
EARTH BORING AND PALE SETTING TRUCKS	7	3	11	19
ELECTRIC LINEMAN TRUCKS	12	6	34	56
FARM RIDING CONCRETE FINISHERS	5	3	9	9
FARM TRACTORS	18	7	48	74
FRONT-END LOADERS	13	5	35	60
GARBAGE PACKERS	5	4	15	21
GRASS CUTTING EQUIPMENT	7	4	28	40
HIGH-REACH MAINTENANCE TRUCKS	13	6	45	65
INDUSTRIAL TRACTORS	12	4	28	48
JOINT CLEANSERS (CONCRETE)	4	3	7	8
LOAD-ALLS	6	4	15	17
MAGNETIC SWEEPERS	8	3	32	47
MUD HOG PUMPS	2	2	6	6
MUD JACKS	2	1	5	5
PAINT STRIPING MACHINES	4	2	4	6
PILE DRIVERS	2	2	5	6
ROLLOVER SNOWPLOWS	7	4	21	35
ROTARY SCRAPERS	2	1	8	13
ROTARY SNOWPLOWS	2	2	12	25
RUBBER TIRED TRACTOR DOZERS	6	3	10	15
SANDSIFTERS	4	0	6	11
SELF-PROPELLED GRADERS	7	3	25	39
SELF-PROPELLED CRAWLER-MOUNTED LOADERS	6	2	11	21

TABLE 9 (CONTINUED)

BASE VEHICLES AND EQUIPMENT MAINTAINED
(PERCENT MEMBERS MAINTAINING)

VEHICLE OR EQUIPMENT	FIRST-ENLISTMENT PERSONNEL			
	AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
SELF-PROPELLED ROLLERS	6	1	14	26
SELF-PROPELLED ROTARY SWEEPERS	5	1	17	25
SELF-PROPELLED SCRAPERS	4	3	8	8
SHEEPS FOOT ROLLERS	2	2	5	6
SHOVELS (CRANE, DRAGLINE, BACKHOE, OR CRAWLER MOUNTED)	7	3	24	36
SNOW ROLLERS	2	2	6	12
STREET SWEEPERS	13	3	36	52
STEEL-WHEEL ROLLER	6	1	15	23
TANDEM ROLLERS	4	2	7	9
TELEPHONE MAINTENANCE TRUCKS	14	5	37	60
TOWED ROLLERS	6	2	10	13
TOWED SWEEPERS	7	4	29	42
TRACTOR DOZERS (CRAWLERS)	7	5	26	39
TRUCK MOUNTED CRANES	13	5	43	64
TRUCK MOUNTED ROCK DRILLS	5	3	6	10
TRUCK MOUNTED SHOVELS (CRANES OR BACKHOES)	5	3	14	19
VACUUM SWEEPERS	7	3	32	49
WATER DISPENSING TRAILERS	25	3	16	20
WHEEL OR CRAWLER DITCHERS	5	3	6	11
WOBBLE WHEEL ROLLERS	5	3	6	14
WRECKERS	16	5	48	63

TABLE 10

SPECIAL VEHICLES MAINTAINED
(PERCENT MEMBERS MAINTAINING)

	FIRST-ENLISTMENT PERSONNEL			
FIREFIGHTING EQUIPMENT AND VEHICLES	AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
CRASH FIRE TRUCKS	93	7	14	13
FORCIBLE ENTRY TRUCKS	73	3	6	7
RAMP FIREFIGHTING TRUCKS	91	5	9	10
RUNWAY FOAMER TRAILERS	85	4	10	10
STRUCTURE FIRE TRUCKS	91	5	11	13
OTHER FIRE/CRASH FIREFIGHTING VEHICLES	12	3	4	3
REFUELING VEHICLES AND EQUIPMENT				
A-1B FUEL TRAILERS	7	50	5	8
DEMINERALIZED WATER TANK TRUCKS	7	59	12	11
FUEL SERVICING TANK TRUCKS	12	95	8	12
HOSE CARTS	7	74	8	13
MD-3 WATER ALCOHOL TRAILERS	4	15	6	6
OIL SERVICING TRUCKS	5	20	7	7
OTHER REFUELING VEHICLES/EQUIPMENT	1	15	4	4
MATERIALS HANDLING EQUIPMENT				
AIRCRAFT CARGO HANDLING TRUCKS	6	3	46	28
BOMB HANDLING CRANES	4	3	16	17
CARGO LOADERS/UNLOADERS (25K)	6	4	76	50
CARGO LOADERS/UNLOADERS (40K)	4	2	63	28
CRASH RECOVERY CRANES (50 TONS)	4	3	19	21
DIESEL POWERED ROUGH TERRAIN FORKLIFTS	7	3	70	37
ELECTRIC POWERED FORKLIFTS	7	2	68	54
GASOLINE ENGINE POWERED TRACKLAYING FORKLIFTS	2	2	21	10
GASOLINE ENGINE POWERED WHEELED FORKLIFTS	13	8	88	62
HI-LIFT TRUCKS	8	4	41	46
MUNITIONS TRANSFER TRUCKS	2	4	12	10
TACTICAL CARGO LOADER/UNLOADERS (25K)	2	3	51	21
WAREHOUSE TRACTORS	8	7	67	54
OTHER MATERIALS HANDLING EQUIPMENT	1	2	1	1

TABLE 10 (CONTINUED)

SPECIAL VEHICLES MAINTAINED
(PERCENT MEMBERS MAINTAINING)

VEHICLE OR EQUIPMENT	FIRST-ENLISTMENT PERSONNEL			
	AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
TOWING AND SERVICING VEHICLES AND EQUIPMENT				
AEROSPACE GROUND EQUIPMENT TOWING EQUIPMENT	7	2	32	52
AIRCRAFT TOWING TRACTORS/TUGS	16	7	61	84
CALAVAR PLATFORM SERVICING TRUCKS	5	2	17	19
DEICERS OTHER THAN STANAY/REDDING	7	3	30	44
PLATFORM TRUCKS OTHER THAN CALAVARS	4	2	9	16
REDDING TECHMATIC DEICERS	2	1	12	24
STANAY DEICERS	4	2	16	23
WATER OR WASTE TANK TRUCKS	11	10	32	30
OTHER TOWING/SERVICING EQUIPMENT	0	1	6	5

TABLE 11

TOOLS OR EQUIPMENT USED BY 472X1A/B/C/D (SPECIAL VEHICLE MECHANIC)
FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL
(PERCENT MEMBERS USING)

TOOLS OR EQUIPMENT	AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
ARMATURE TESTERS	6	2	12	13
DYNAMOMETERS	6	1	6	11
ELECTRICAL CHARGING SYSTEM TESTERS	54	46	66	62
ELECTRONIC IGNITION TESTERS	20	3	17	19
ENGINE ANALYZERS	20	14	32	29
EXHAUST EMISSION TESTERS	5	6	11	5
GAS SHIELD WELDING EQUIPMENT	10	1	10	12
HEADLIGHT TESTERS	10	4	12	13
HYDRAULIC TEST GAUGES	51	37	50	37
HYDROSTATIC HOSE TESTERS	10	89	9	3
MANUAL OR HYDRAULIC PRESSES	37	22	57	56
MASTER METERS	18	83	6	7
OSCILLOSCOPES	5	1	10	10
PROVER TANKS	1	43	1	1
TOXIC GAS ANALYZERS	2	22	3	1

TABLE 12

FIRE AND CRASH FIREFIGHTING VEHICLE-SPECIFIC MAINTENANCE TASKS PERFORMED BY 30 PERCENT OR MORE OF 472X1A (FIRETRUCK MECHANIC) FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=84)
R615	ADJUST FIREFIGHTING PUMP PACKINGS	86
R641	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET CONTROL CABLES	80
R614	ADJUST FIREFIGHTING EQUIPMENT TURRET HYDRAULIC SYSTEM COMPONENTS	77
R627	ISOLATE FIREFIGHTING EQUIPMENT TURRET ELECTRICAL SYSTEM MALFUNCTIONS	76
R628	ISOLATE FIREFIGHTING EQUIPMENT TURRET HYDRAULIC SYSTEM MALFUNCTIONS	75
R629	ISOLATE FIREFIGHTING PUMPING SYSTEM MALFUNCTIONS	75
R622	INSPECT FIREFIGHTING EQUIPMENT WATER OR FOAM TANKS	75
R640	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET FOAM AND WATER SYSTEM COMPONENTS	74
R642	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET ELECTRICAL SYSTEM COMPONENTS	73
R617	ADJUST FIREFIGHTING PUMPING SYSTEM RELIEF VALVES	69
R643	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET HYDRAULIC SYSTEM COMPONENTS	69
R620	DISASSEMBLE OR ASSEMBLE FIREFIGHTING PUMPING SYSTEM VALVES	68
R613	ADJUST FIREFIGHTING EQUIPMENT TURRET ELECTRICAL SYSTEM COMPONENTS	68
R619	DISASSEMBLE OR ASSEMBLE FIREFIGHTING EQUIPMENT TURRET HEADS	66
R651	REPACK FIREFIGHTING PUMPS	66
R626	ISOLATE FIREFIGHTING EQUIPMENT PNEUMATIC DISPENSING CONTROL SYSTEM MALFUNCTIONS	64
R630	ISOLATE FIREFIGHTING VEHICLE BOOSTER HEATER SYSTEM MALFUNCTIONS	64
R645	REMOVE OR INSTALL FIREFIGHTING PUMP CLUTCHES	64
R646	REMOVE OR INSTALL FIREFIGHTING PUMPING SYSTEM VALVES	62
R649	REMOVE OR INSTALL FIREFIGHTING VEHICLE BOOSTER HEATER COMPONENTS	62
R621	DISASSEMBLE OR ASSEMBLE FIREFIGHTING PUMPS	57
R635	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT HOSE REEL CONTROLS	57
R623	INSPECT FLUSH FOAM SYSTEMS	56
R650	REMOVE OR INSTALL FIREFIGHTING VEHICLE WINTERIZATION SYSTEM COMPONENTS	55
R624	INSTALL FIREFIGHTING EQUIPMENT TURRET CONTROL COLUMN REPAIR KITS	55

TABLE 12 (CONTINUED)

FIRE AND CRASH FIREFIGHTING VEHICLE-SPECIFIC MAINTENANCE TASKS PERFORMED BY 30 PERCENT OR MORE OF 472X1A (FIRETRUCK MECHANIC) FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=84)
R612	ADJUST FIREFIGHTING EQUIPMENT CLUTCH MODULATION OR POWER DIVIDERS	54
R616	ADJUST FIREFIGHTING PUMPING SYSTEM PILOT VALVES	54
R633	PHASE TURRETS	54
R637	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT PNEUMATIC DISPENSING CONTROL SYSTEM COMPONENTS	52
R647	REMOVE OR INSTALL FIREFIGHTING PUMPS	52
R638	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT PRIMER UNITS	51
R648	REMOVE OR INSTALL FIREFIGHTING VEHICLE BOOSTER HEATERS	50
R655	TEST FIREFIGHTING EQUIPMENT CLUTCH MODULATION OF POWER DIVIDERS	50
R644	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT WATER OR FOAM TANKS	49
R653	SYNCHRONIZE FIREFIGHTING EQUIPMENT ENGINE REVOLUTIONS PER MINUTE	48
R631	OVERHAUL FIREFIGHTING EQUIPMENT PNEUMATIC DISPENSING CONTROL SYSTEMS	46
R652	SERVICE FIREFIGHTING EQUIPMENT DISPENSING SYSTEM LINE STRAINERS	46
R632	OVERHAUL FIREFIGHTING EQUIPMENT PRIMER UNITS	45
R636	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT HOSE REELS	42
R654	SYNCHRONIZE FIREFIGHTING EQUIPMENT TRANSMISSION GOVERNORS	42
R625	ISOLATE AUXILIARY GENERATOR MALFUNCTIONS	39
R618	DISASSEMBLE OR ASSEMBLE AUXILIARY GENERATORS	33
R634	REMOVE OR INSTALL AUXILIARY GENERATORS	32
R639	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TANK BAFFLES	32

Figure 1 displays the distribution of first-enlistment 472X1A (Firetruck Mechanic) personnel across the job groups identified in the JOB STRUCTURE ANALYSIS section of the Base Vehicle Equipment, Special Vehicle, General Purpose Vehicle, and Vehicle Body Mechanic OSR. As shown in this figure, the majority (95 percent) of these first-term members grouped together in the Vehicle Repair Mechanics functional area. Within this functional area, 73 percent were found in either the General Repair Firefighting Vehicle Mechanics or the Minor Repair Firefighting Vehicle Mechanics job groups. The way in which these members grouped indicates that even though they have a lot in common with other vehicle mechanics, some aspects of their job are different.

Vehicles Maintained. As shown in Tables 8 through 10, 472X1A (Firetruck Mechanic) first-enlistment personnel mainly repair and maintain firefighting vehicles and related equipment and of the four Special Vehicle Mechanic specialties are the primary members maintaining these types of vehicles. Additionally, except for firefighting vehicles, pickup trucks, and truck-tractor trailers, these tables show very few of these members maintaining any other type of vehicles. Both the vehicles maintained data and the percent members performing data show these members specializing on firefighting vehicles, therefore, indicating training should cover all types of systems and system components found on fire and crash firefighting vehicles.

First-Enlistment MAJCOM Differences. Tasks performed and vehicles maintained by 472X1A (Firetruck Mechanic) first-enlistment personnel within TAC, SAC, USAFE, and MAC, were compared to determine whether job content varied as a function of major command (MAJCOM) assignment. Generally, job content for 472X1A (Firetruck Mechanic) members did not vary as a function of MAJCOM assignment. In terms of tasks performed, the only notable difference found was that more of the first-term members assigned to MAC performed tasks related to repairing tires. Members assigned to MAC also maintained a wider variety of different vehicles than did members in the other three commands (specific vehicle maintained data can be found in the 472X1A Training Extract).

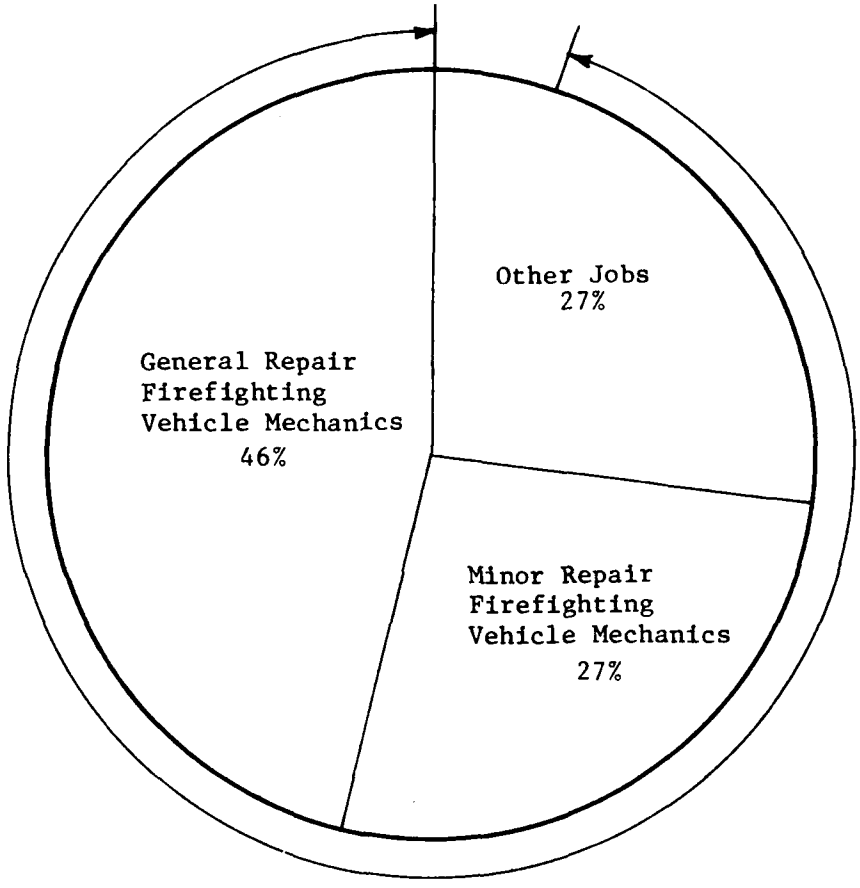
The differences found between the four 472X1A (Firetruck Mechanic) MAJCOM first-enlistment groups were small and did not reflect major differences in the overall job content of first-enlistment personnel assigned to the different MAJCOMs. In terms of training, any differences noted between the four MAJCOM groups probably can be handled through local OJT programs.

AFS 472X1B (Refueling Vehicle Mechanic) First-Enlistment Personnel

Tasks and Jobs Performed. AFS 472X1B (Refueling Vehicle Mechanic) first-enlistment personnel, in addition to performing many of the nonvehicle-specific tasks, perform tasks specific to refueling vehicles. Thirty percent or more of these first-term members performed 37 of the 38 refueling vehicle-specific tasks listed in the inventory. These tasks, as shown in Table 13, dealt with such items as removing, installing, adjusting, and inspecting refueling vehicle equipment and equipment components plus disassembling and assembling system components.

FIGURE 1

DISTRIBUTION OF 472X1A (FIRETRUCK MECHANIC) FIRST-ENLISTMENT PERSONNEL ACROSS CAREER FIELD JOBS
(PERCENT MEMBERS RESPONDING)
(N=84)



Vehicle Repair Mechanics (95%)

TABLE 13

REFUELING VEHICLE-SPECIFIC MAINTENANCE TASKS
PERFORMED BY 30 PERCENT OR MORE OF 472X1B (REFUELING VEHICLE MECHANIC)
FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=96)
S689	REMOVE OR INSTALL REFUELING HOSES	93
S688	REMOVE OR INSTALL REFUELING EQUIPMENT VITAULIC COUPLINGS	92
S693	REMOVE OR INSTALL STATIC DISCHARGE REELS	90
S682	REMOVE OR INSTALL REFUELING EQUIPMENT FILTERS	89
S661	ADJUST REFUELING EQUIPMENT HOSE REEL COMPONENTS	88
S672	PERFORM REFUELING HOSE HYDROSTATIC TESTS	88
S662	CALIBRATE REFUELING METERS	86
S664	DISASSEMBLE OR ASSEMBLE REFUELING EQUIPMENT DISPENSING SYSTEM VALVES	84
S667	INSPECT REFUELING EQUIPMENT TANK MOUNTINGS	84
S686	REMOVE OR INSTALL REFUELING EQUIPMENT LINE STRAINERS	84
S690	REMOVE OR INSTALL REFUELING METER COMPONENTS	84
S665	DISASSEMBLE OR ASSEMBLE REFUELING EQUIPMENT HOSE REEL COMPONENTS	83
S666	DISASSEMBLE OR ASSEMBLE REFUELING PUMP ASSEMBLIES	82
S675	PERFORM STATIC GROUND REEL CONTINUITY TESTS	82
S691	REMOVE OR INSTALL REFUELING PUMP ASSEMBLIES	82
S671	ISOLATE REFUELING METER MALFUNCTIONS	81
S659	ADJUST REFUELING EQUIPMENT DISPENSING SYSTEM VALVES	80
S685	REMOVE OR INSTALL REFUELING EQUIPMENT HOSE REELS	80
S681	REMOVE OR INSTALL REFUELING EQUIPMENT DISPENSING SYSTEM VALVES	78
S670	ISOLATE REFUELING EQUIPMENT DISPENSING SYSTEM MALFUNCTIONS	77
S684	REMOVE OR INSTALL REFUELING EQUIPMENT HOSE REEL DRIVE COMPONENTS	77
S687	REMOVE OR INSTALL REFUELING EQUIPMENT TANK PADS	77
S679	REMOVE OR INSTALL MANHOLE COVERS	76
S668	INSPECT REFUELING NOZZLES OR HYDRANT COUPLERS (MOOSEHEADS)	75
S660	ADJUST REFUELING EQUIPMENT FLOAT CONTROL VALVES	73
S683	REMOVE OR INSTALL REFUELING EQUIPMENT FLOAT CONTROL VALVES	68
S676	REMOVE OR INSTALL AIR ELIMINATORS	67
S657	ADJUST REFUELING EQUIPMENT AIR PRIORITY VALVES	63
S677	REMOVE OR INSTALL DEFUEL KITS	63
S663	DISASSEMBLE OR ASSEMBLE HYDRANT COUPLERS (MOOSEHEADS)	61
S678	REMOVE OR INSTALL HYDRANT COUPLERS (MOOSEHEADS)	60
S692	REMOVE OR INSTALL SEGREGATOR FLOAT ASSEMBLIES	59
S656	ADJUST HYDRANT COUPLERS (MOOSEHEADS)	56
S673	PERFORM REFUELING NOZZLE HYDROSTATIC TESTS	55
S674	PERFORM SEGREGATOR FLOAT BALLAST CHECKS	54
S658	ADJUST REFUELING EQUIPMENT BOOSTER HEATER SYSTEM COMPONENTS	31
S669	ISOLATE REFUELING EQUIPMENT BOOSTER HEATER SYSTEM MALFUNCTIONS	30

The distribution of first-enlistment 472X1B (Refueling Vehicle Mechanic) personnel across the job groups identified in the JOB STRUCTURE ANALYSIS section of the Vehicle Maintenance Mechanics August 1982 OSR is displayed in Figure 2. This figure shows that the highest percentage (97 percent) of these personnel are found in the Vehicle Repair Mechanics functional area. Within this functional area, 87 percent grouped in either the General Repair Refueling Vehicle Mechanic or the Refueling Vehicle Equipment Mechanic job groups. This distribution of 472X1B (Refueling Vehicle Mechanic) members indicates that even though these members have a lot in common with other vehicle mechanics in terms of the job they perform, some aspects of their job are distinctly different.

Vehicles Maintained. As shown in Tables 8 through 10, 472X1B (Refueling Vehicle Mechanic) first-enlistment personnel specialize on maintaining and repairing refueling vehicles. AFS 472X1B (Refueling Vehicle Mechanic) members are the primary mechanics who maintain refueling vehicles and very few of these members repair any other type of vehicle. From both the vehicle maintained data and the percent members performing data, it appears that these members are specializing on refueling vehicles. Therefore, as the data indicates, training for these members should cover all types of systems and system components found on refueling vehicles.

First-Enlistment MAJCOM Differences. The four MAJCOMs with the largest first-enlistment 472X1B (Refueling Vehicle Mechanic) populations were compared to determine whether job content varies as a function of MAJCOM assignment. The four commands examined in the analysis included TAC, SAC, USAFE, and MAC. Generally, overall job content for first-enlistment members within the 472X1B (Refueling Vehicle Mechanic) specialty did not vary as a function of MAJCOM assignment. Only minor differences were noted between these four MAJCOM groups on tasks performed. Compared to the other two MAJCOMs, incumbents assigned to SAC and USAFE performed less tasks related to maintaining hydraulic and pneumatic systems. Additionally, more of the first-enlistment members assigned to SAC performed refueling vehicle-specific tasks related to booster heater systems. Also, a substantial percentage (30 to 50 percent) of the USAFE and MAC members performed some tasks involving repairing and painting of vehicle bodies. In terms of vehicles maintained, there were no notable differences between the four MAJCOMs (specific vehicles maintained data can be found in the 472X1B Training Extract).

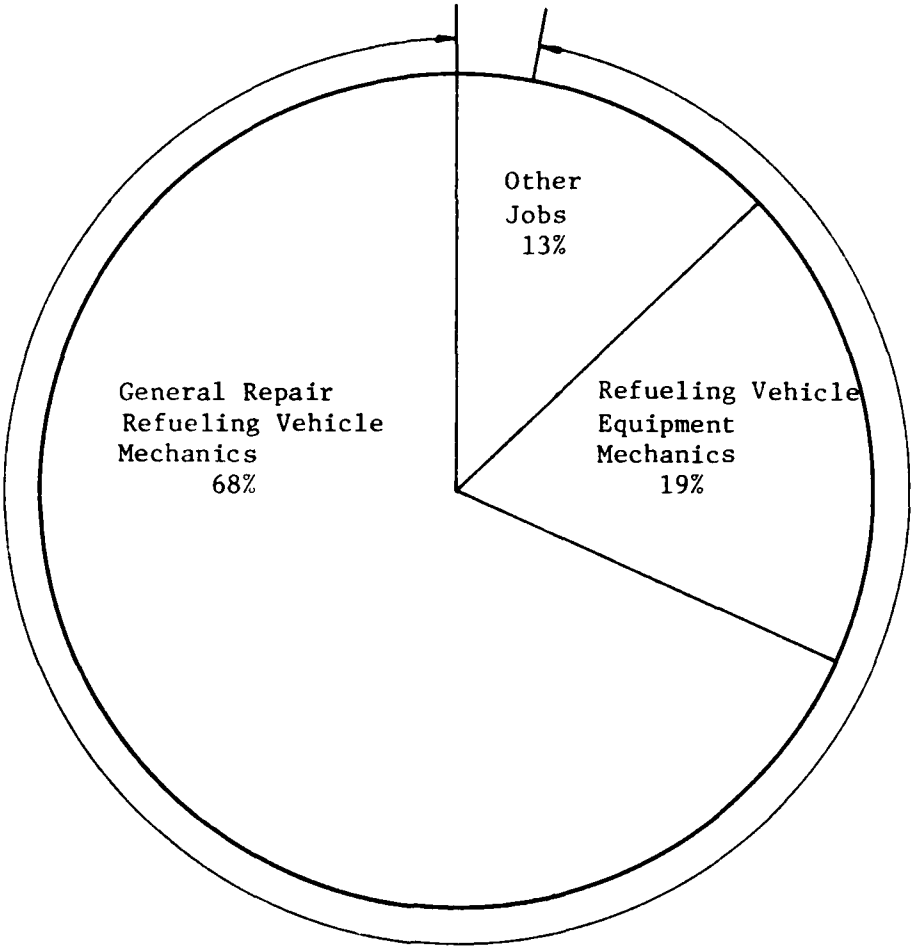
Differences found between the four 472X1B (Refueling Vehicle Mechanic) first-enlistment MAJCOM groups were small and did not reflect major difference in job content between the four MAJCOM groups. The differences noted probably can be handled effectively through local OJT programs.

AFS 472X1C (Materials Handling Equipment Mechanic) First-Enlistment Personnel

Tasks and Jobs Performed. In addition to performing the nonvehicle-specific tasks, AFS 472X (Materials Handling Equipment Mechanic) first-enlistment personnel perform many tasks specific to materials handling equipment. Of the 22 materials handling equipment-specific tasks listed in

FIGURE 2

DISTRIBUTION OF 472X1B (REFUELING VEHICLE MECHANIC) FIRST-ENLISTMENT PERSONNEL ACROSS CAREER FIELD JOBS
(PERCENT MEMBERS RESPONDING)
(N=96)



Vehicle Repair Mechanics (97%)

the inventory, 15 were performed by 30 percent or more of these first-term members. As shown in Table 14, these tasks involved inspecting, adjusting, removing, and installing components on forklifts and cargo loaders.

Figure 3 displays the distribution of first-term 472X1C (Materials Handling Equipment Mechanic) members across the career ladder jobs identified in the JOB STRUCTURE ANALYSIS section of the Vehicle Maintenance Mechanics August 1982 OSR. As shown in this figure, the majority (98 percent) grouped together in the Vehicle Repair Mechanics functional area. Within this functional area, 70 percent were concentrated in the General Repair Mechanics job group, along with members from other vehicle maintenance specialties. Other 472X1C (Materials Handling Equipment Mechanic) first-enlistment members performed variations of the Vehicle Repair Mechanics job. These variations were small and centered primarily around more job time being spent on one vehicle system versus another system. There were no job groups identified containing only AFS 472X1C (Materials Handling Equipment Mechanic) members, indicating a large degree of commonality between AFS 472X1C (Materials Handling Equipment Mechanic) members and members in other vehicle maintenance specialties.

Vehicles Maintained. Tables 8 through 10 show first-enlistment 472X1C (Materials Handling Equipment Mechanic) members maintain not only materials handling equipment but also vehicles which are the responsibility of members in other vehicle maintenance specialties. Although a large percentage of these members are maintaining many of the different types of materials handling equipment (see Table 10), some did indicate repairing and maintaining towing and servicing, general purpose, and base vehicles (see Tables 8 through 10). The percent members performing tasks data indicates some specialization on materials handling equipment-specific tasks with members also performing a wide variety of tasks common to all types of vehicles. Coupled with the vehicle maintained information, the data show that the nonvehicle-specific tasks are performed on a wide variety of vehicles. From this data, it would appear training should cover not only the materials handling equipment-specific tasks but also, nonvehicle-specific tasks which are common to a variety of vehicles.

First-Enlistment MAJCOM Differences. Tasks performed and vehicles maintained by 472X1C (Materials Handling Equipment Mechanic) first-enlistment personnel within TAC, SAC, USAFE, and MAC, were compared to determine whether job content varied as a function of MAJCOM assignment. Some differences in terms of tasks performed, although minor, were noted. The first-enlistment members assigned to SAC performed less tasks related to maintaining hydraulic and pneumatic systems; maintaining drive lines, steering, and suspension systems; maintaining brake systems; and maintaining materials handling equipment. Additionally, two of the base vehicle-specific tasks (removing or installing crane brakes or clutches and removing or installing sweeper blower assemblies) were performed by 33 percent of the TAC first-enlistment members while only very few of the members in the other three commands performed these two tasks. In terms of type and numbers of vehicles maintained, the only differences noted between the four MAJCOM groups were for first-enlistment personnel assigned to MAC. These members

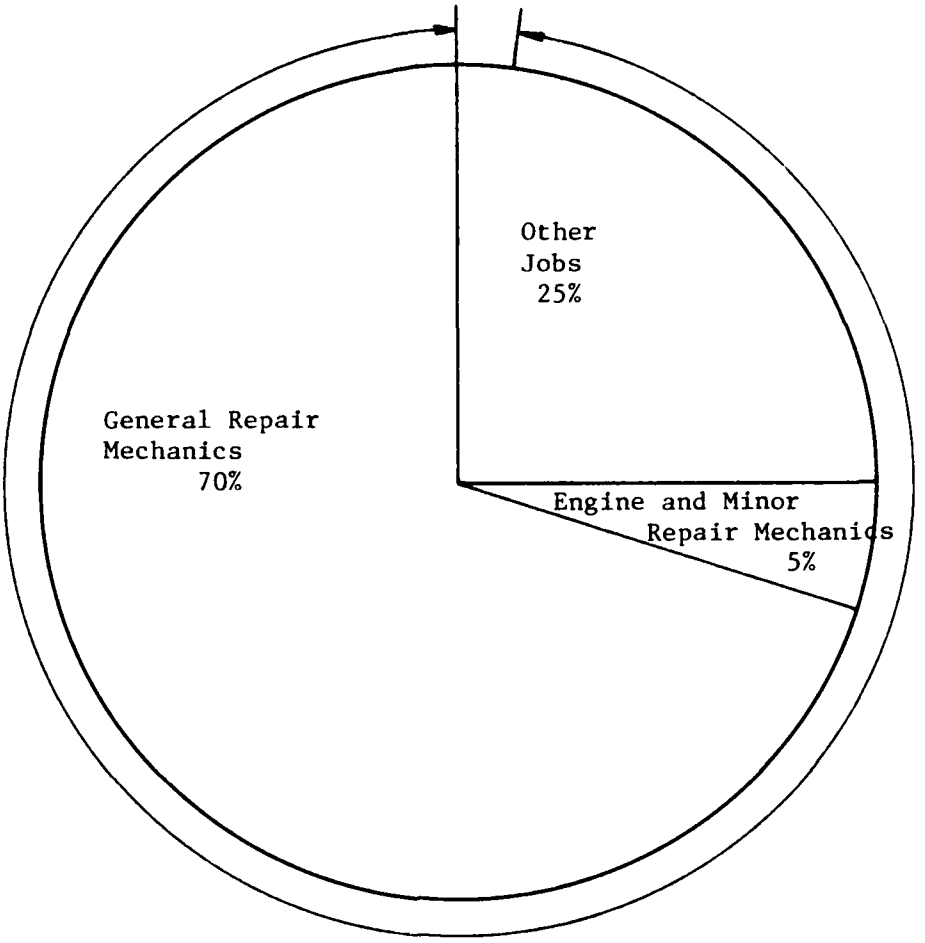
TABLE 14

MATERIALS HANDLING EQUIPMENT-SPECIFIC MAINTENANCE TASKS PERFORMED BY 30 PERCENT OR MORE OF 472X1C (MATERIALS HANDLING EQUIPMENT MECHANIC) FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=145)
T704	INSPECT FORKLIFT MAST ASSEMBLIES	80
T698	ADJUST FORKLIFT CHAINS	72
T699	ADJUST FORKLIFT CONTROL INCHING VALVES	61
T700	ADJUST FORKLIFT TILT CYLINDERS	61
T715	REMOVE OR INSTALL FORKLIFT MAST ASSEMBLY COMPONENTS	58
T695	ADJUST CARGO LOADER PALLET STOP MECHANISMS	55
T706	REMOVE OR INSTALL CARGO LOADER PALLET LOCK COMPONENTS	53
T707	REMOVE OR INSTALL CARGO LOADER PALLET LOCKS	53
T708	REMOVE OR INSTALL CARGO LOADER PALLET STOPS	50
T714	REMOVE OR INSTALL FORKLIFT MAST ASSEMBLIES	48
T696	ADJUST CARGO LOADER PLATFORM SIDE SHIFT MECHANISMS	46
T713	REMOVE OR INSTALL FORKLIFT COUNTER WEIGHTS	43
T712	REMOVE OR INSTALL FORKLIFT CONTROL INCHING VALVES	41
T697	ADJUST ELECTRIC FORKLIFT ACCELERATING OR DIRECTIONAL SYSTEM COMPONENTS	37
T709	REMOVE OR INSTALL CARGO LOADER PLATFORM SIDE SHIFT MECHANISM COMPONENTS	34

FIGURE 3

DISTRIBUTION OF 472X1C (MATERIALS HANDLING EQUIPMENT MECHANIC)
FIRST-ENLISTMENT PERSONNEL ACROSS CAREER FIELD JOBS
(PERCENT MEMBERS RESPONDING)
(N=145)



Vehicle Repair Mechanics (98%)

worked on less base vehicles and towing and servicing vehicles than did members in the other MAJCOM groups (specific vehicles maintained data can be found in the 472X1C Training Extract).

Generally, the differences found between the four MAJCOM first-enlistment groups were small and did not reflect major differences in the overall job content of first-enlistment personnel assigned to the different MAJCOMs. Any of the differences found in job content can probably be effectively handled through local OJT programs.

AFS 472X1D (Towing and Servicing Vehicle Mechanic) First-Enlistment Personnel

Tasks and Jobs Performed. Unlike other Special Vehicle Mechanics, AFS 472X1D (Towing and Servicing Vehicle Mechanic) personnel do not perform many tasks specific to the type of vehicles for which they are responsible. The majority of tasks performed by these members are not related to any one specific type of vehicle but rather, are nonvehicle-specific in nature. Of the 24 towing and servicing vehicle-specific tasks in the job inventory, the four listed below were the only ones performed by 30 percent or more of the 472X1D (Towing and Servicing Vehicle Mechanic) first-enlistment members.

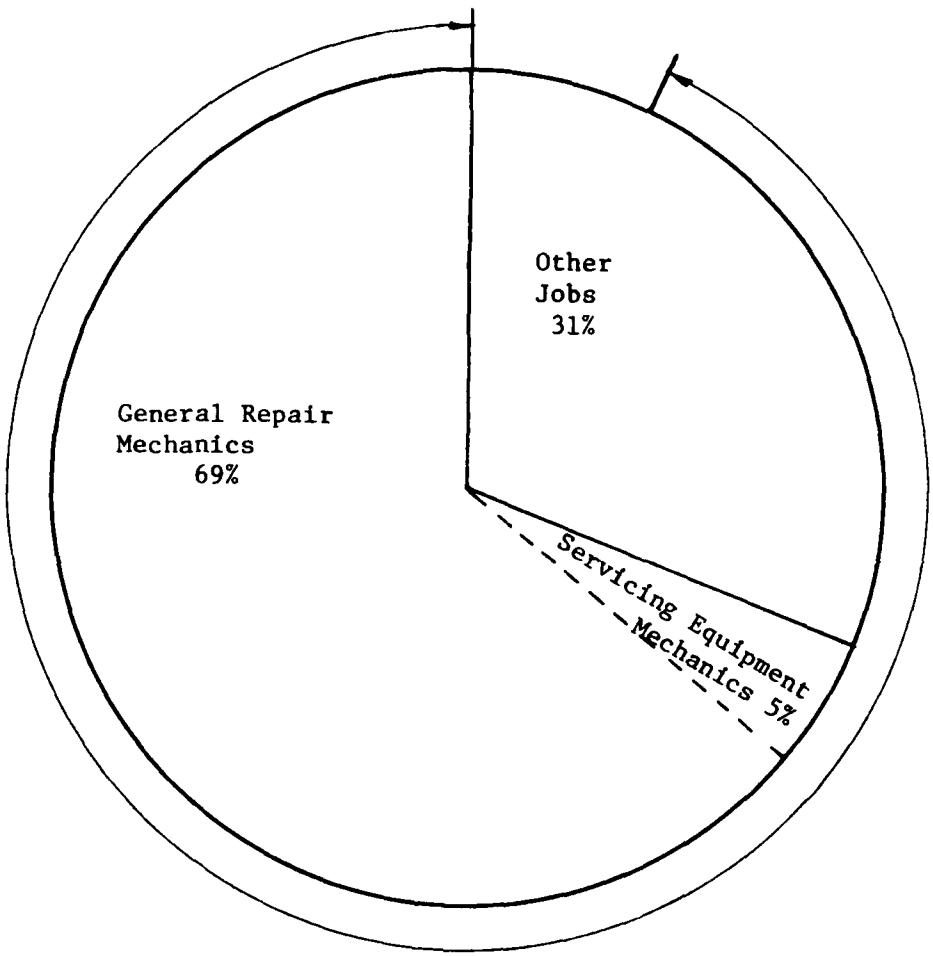
Adjust servicing equipment boom assembly controls
Inspect servicing equipment boom assemblies
Inspect servicing equipment aerial work platforms
Adjust servicing equipment boom assembly safety devices

The distribution of 472X1D (Towing and Servicing Vehicle Mechanic) first-enlistment members across job groups identified in the JOB STRUCTURE ANALYSIS section of the August 1982 Vehicle Maintenance Mechanics OSR is shown in Figure 4. This figure reflects that the largest percentage of this group of airmen perform essentially the same basic job with the majority (69 percent) grouping together in the General Repair Mechanics job group with members from other vehicle maintenance specialties. There were no job groups identified containing only AFS 472X1D (Towing and Servicing Vehicle Mechanic) members. This finding reflects the high commonality between the job of 472X1D (Towing and Servicing Vehicle Mechanic) members and members in other vehicle maintenance specialties.

Vehicles Maintained. AFS 472X1D (Towing and Servicing Vehicle Mechanic) first-term members do not specialize on repairing towing and servicing vehicles. Rather, as shown in Tables 8 through 10, these members maintain many of the general purpose vehicles, base vehicles, and materials handling equipment, as well as the towing and servicing vehicles. The vehicle maintained data and the percent members performing data both indicate a lack of specialization on one type of vehicle by first-enlistment 472X1D (Towing and Servicing Vehicle Mechanic) personnel. From this data, it would appear that training should concentrate on nonvehicle-specific tasks common to a wide variety of vehicles.

FIGURE 4

DISTRIBUTION OF 472X1D (TOWING AND SERVICING VEHICLE MECHANIC)
FIRST-ENLISTMENT PERSONNEL ACROSS CAREER FIELD JOBS
(PERCENT MEMBERS RESPONDING)
(N=144)



Vehicle Repair Mechanics (93%)

First-Enlistment MAJCOM Differences. The four MAJCOMs with the largest first-enlistment 472X1D (Towing and Servicing Vehicle Mechanic) populations were compared to determine whether job content varies as a function of MAJCOM assignment. The four commands examined in this analysis included TAC, SAC, USAFE, and MAC. Generally, overall job content for first-enlistment members within the 472X1D (Towing and Servicing Vehicle Mechanic) specialty did not vary as a function of MAJCOM assignment. Approximately 30 percent of the SAC members performed two base vehicle-specific tasks (adjusting snowplow attachments and removing or installing outrigger assemblies) while only a very few of the members in the other three commands performed these two tasks. Additionally, more of the members assigned to MAC performed tasks related to maintaining towing and servicing vehicles and equipment than did first-term members assigned to the other commands. In terms of type and numbers of vehicles maintained, the only differences noted between the four MAJCOM groups were for first-enlistment personnel assigned to SAC. These members worked on more base and general purpose vehicles than did members in the three other MAJCOM groups (specific vehicles maintained data can be found in the 472X1D Training Extract).

Differences found between the four 472X1D (Towing and Servicing Vehicle Mechanic) first-enlistment MAJCOM groups were small and did not reflect major differences in job content between the four MAJCOM groups. In terms of training, the differences noted probably can be handled effectively through local OJT programs.

TRAINING ANALYSIS

Occupational survey data are one of many sources of information which can be used to assist in the development of a training program relevant to the needs of personnel working in their first assignment within a career ladder. Factors which may be used in evaluating training are the percent of first job (1-24 months TAFMS) or first-enlistment (1-48 months TAFMS) members performing tasks, along with training emphasis and task difficulty ratings (previously explained in the TASK FACTOR ADMINISTRATION section). These factors were used in evaluating the Specialty Training Standards (STSs) and the Plans of Instruction (POIs) for the Special Vehicle Mechanic (AFSs 472X1A/B/C/D) career ladders. Technical school personnel from the Chanute Technical Training Center, Chanute AFB, Illinois, matched inventory tasks to appropriate sections of the AFSs 472X1A/B/C/D STS, the 47271 STS, the POI for Course 3ABR47231A/B/C/D (common portion of the Special Vehicle Mechanic basic course), and the POIs for the shredout specific portions of the basic course. It was this matching upon which comparisons are based. It should be noted that comments and tables presented in this section pertaining to questionable elements (or lack of elements) in the training documents are intended to highlight what appear to be possible problem areas. A complete computer listing reflecting the percent members performing, training emphasis ratings, and task difficulty ratings for each task, along with STS and POI matchings, has been forwarded to the technical school for their use in further detailed reviews of training documents.

Training Emphasis

As explained in the TASK FACTOR ADMINISTRATION section, separate training emphasis ratings were obtained for each of the Special Vehicle Mechanic specialties (AFSs 472X1A/B/C/D). Many of the tasks receiving high training emphasis ratings across the four Special Vehicle Mechanic specialties (AFSs 472X1A/B/C/D) were related to the maintenance of nonvehicle-specific systems and system components. These tasks included such items as inspecting various electrical subsystems; isolating malfunctions in electrical subsystems, fuel systems, brake systems, and hydraulic or pneumatic systems; and adjusting carburetors, wheel bearings, ignition points and service brakes (see Table 15 for sample tasks rated highest in training emphasis across all specialties). Many of these nonvehicle-specific tasks are performed by 30 percent or more of the first-enlistment members in each of the Special Vehicle Mechanic (AFSs 472X1A/B/C/D) specialties. The high training emphasis ratings and the percent members performing data would indicate that these nonvehicle-specific tasks are well suited for some form of common structured training unless other factors override such consideration. A review of Table 15 reflects that 32 of the 37 tasks listed in the table were matched to the basic course POIs for all Special Vehicle Mechanics (AFSs 472X1A/B/C/D), with one task (J329 Isolate hydraulic system malfunctions) being matched to all but the basic course for AFS 472X1B (Refueling Vehicle Mechanic) members. These matchings indicate that the tasks are currently being taught in the technical school. Some of the tasks not matched to the POIs have well over 30 percent of the first-term members performing them, suggesting resident course training on these tasks may be appropriate.

TABLE 15

TASKS RATED HIGHEST IN TRAINING EMPHASIS FOR ALL SPECIAL VEHICLE MECHANICS

TASKS		TRAINING EMPHASIS RATINGS***			
		472X1A	472X1B	472X1C	472X1D
G193	LUBRICATE VEHICLES	6.07	6.34	6.40	6.34
H228	REMOVE OR INSTALL ENGINES	5.85	6.12	5.83	5.86
*H232	REMOVE OR INSTALL HEAD ASSEMBLIES	5.95	6.14	6.19	5.98
*H249	TEST CYLINDER COMPRESSION IN GASOLINE ENGINES	6.00	6.27	6.27	6.11
*I256	ADJUST IGNITION POINTS USING DWELL METERS	6.23	6.00	6.40	6.13
*I257	ADJUST IGNITION POINTS USING FEELER GAUGES	6.00	6.23	6.37	5.98
*I265	INSPECT BATTERIES	5.85	5.55	6.26	5.97
*I266	INSPECT CHARGING SYSTEMS	6.55	6.32	6.72	6.61
*I267	INSPECT IGNITION SYSTEMS	6.55	6.25	6.65	6.52
*I268	INSPECT LIGHTING SYSTEMS	6.18	6.04	6.39	6.32
*I269	INSPECT STARTING SYSTEMS	6.43	6.37	6.66	6.55
*I270	INSPECT WARNING SYSTEMS	6.03	6.12	6.25	6.11
*I271	INTERPRET ELECTRICAL SYSTEM DIAGRAMS OR SCHEMATICS	7.05	6.84	7.11	6.60
*I272	ISOLATE ALTERNATOR MALFUNCTIONS	6.45	6.21	6.74	6.45
*I273	ISOLATE CHARGING SYSTEM MALFUNCTIONS	6.93	6.52	6.91	6.57
*I274	ISOLATE ELECTRONIC IGNITION SYSTEM MALFUNCTIONS	6.77	6.12	6.77	6.44
*I276	ISOLATE IGNITION SYSTEM MALFUNCTIONS ON OTHER THAN ELECTRONIC IGNITION SYSTEMS	6.55	6.02	6.69	6.29
*I277	ISOLATE LIGHTING SYSTEM MALFUNCTIONS	6.15	6.07	6.55	6.17
*I279	ISOLATE STARTER SYSTEM MALFUNCTIONS	6.42	6.25	6.86	6.53
*I280	ISOLATE WARNING SYSTEM MALFUNCTIONS	5.82	5.86	6.28	5.97
*I317	SET IGNITION TIMING	6.33	6.41	6.70	6.41
*J328	INTERPRET HYDRAULIC OR PNEUMATIC SYSTEM DIAGRAMS OR SCHEMATICS	6.48	6.07	6.52	6.16
**J329	ISOLATE HYDRAULIC SYSTEM MALFUNCTIONS	6.23	5.41	6.52	6.27
*J330	ISOLATE PNEUMATIC SYSTEM MALFUNCTIONS	6.23	5.86	6.09	5.94
*K349	ADJUST CARBURETOR FLOAT LEVELS	6.13	5.84	6.09	6.01
*K350	ADJUST CARBURETOR FUEL MIXTURES	6.17	6.12	6.39	6.19
*K358	BLEED OR PRIME DIESEL FUEL SYSTEMS	6.33	6.21	6.49	6.42
*K366	INSTALL CARBURETOR REPAIR KITS	5.83	6.04	5.66	5.93

TABLE 15 (CONTINUED)

TASKS RATED HIGHEST IN TRAINING EMPHASIS FOR ALL SPECIAL VEHICLE MECHANICS

TASKS		TRAINING EMPHASIS RATINGS***			
		472X1A	472X1B	472X1C	472X1D
*K370	ISOLATE DIESEL FUEL SYSTEM MALFUNCTIONS	5.93	6.11	6.19	6.10
*K372	ISOLATE GASOLINE FUEL SYSTEM MALFUNCTIONS	5.98	6.20	6.10	6.11
N474	ADJUST WHEEL BEARINGS	6.10	5.98	6.08	6.17
N484	PACK WHEEL BEARINGS	6.03	6.29	5.98	6.09
*0523	ADJUST SERVICE BRAKES	6.25	6.04	6.25	6.17
*0525	BLEED OR FLUSH BRAKE SYSTEMS	5.80	5.93	6.25	6.20
*0529	INSPECT HYDRAULIC BRAKE SYSTEM COMPONENTS	6.07	5.66	6.05	6.03
*0532	ISOLATE AIR BRAKE SYSTEM MALFUNCTIONS	6.37	5.61	6.09	6.10
*0534	ISOLATE HYDRAULIC BRAKE SYSTEM MALFUNCTIONS	6.28	5.50	6.15	6.18

* INDICATES TASKS COVERED IN BASIC COURSE FOR AFSs 472X1A/B/C/D
** INDICATES TASKS COVERED IN BASIC COURSE FOR AFSs 472X1A/C/D
*** TRAINING EMPHASIS RATINGS VARY BY SPECIALTY. HIGH TRAINING EMPHASIS RATINGS ARE 472X1A- 5.14, 472X1B - 5.01, 472X1C - 5.07, AND 472X1D - 5.10

Since the tasks presented in Table 15 received high training emphasis ratings across all the Special Vehicle Mechanic specialties are performed by more that 30 percent of the first-enlistment members in each of the four specialties, and are nonvehicle-specific in nature, they give a good indication of the type of tasks which should be included in a common course for all Special Vehicle Mechanics (AFSs 472X1A/B/C/D). Since AFSs 472X1A/B/C/D (Special Vehicle Mechanic) members should be specializing on vehicles and tasks consistent with their shredout designations, training emphasis ratings for the vehicle-specific tasks listed in the job inventory were evaluated and are discussed below.

Fire and Crash Firefighting Vehicle Specific Tasks (AFS 472X1A). Table 16 presents the training emphasis ratings (ratings are from AFS 472X1A supervisors) for the fire and crash firefighting vehicle specific maintenance tasks. Of the tasks presented in this table, four tasks relating to isolating firefighting equipment system malfunctions received high training emphasis ratings (above 5.14) and task difficulty ratings (above 6.00). Most of the remaining firefighting vehicle-specific tasks were rated above average in training emphasis (average training emphasis rating is 3.44), with eight receiving high task difficulty ratings. Additionally, all of the tasks presented in this table are performed by 30 percent or more of the 472X1A (Firetruck Mechanics) first-enlistment members. Further, 30 of these 44 fire and crash firefighting vehicle-specific tasks were matched to the 3ABR47231A POI, indicating they are currently taught in the technical school. Of the 14 tasks not matched to the POI, all have over 30 percent of the first-term members performing them and 11 were rated above average in training emphasis, suggesting resident course training on some of these 14 tasks may be appropriate.

Refueling Vehicle-Specific Tasks (AFS 472X1B). Training emphasis ratings (ratings are from AFS 472X1B supervisors) for refueling vehicle specific maintenance tasks are presented in Table 17. Generally, the tasks rated high in training emphasis (above 5.01) involved performing refueling nozzle and hose hydrostatic tests; disassembling and assembling hose reel components, dispensing system valves, and pump assemblies; isolating dispensing system and meter malfunctions; removing or installing pump assemblies, refueling hoses, and refueling equipment filters; adjusting dispensing valves and float control valves; and calibrating refueling meters. The remaining refueling vehicle-specific tasks were rated above average in training emphasis (average training emphasis rating is 3.26). Additionally, 17 of the tasks listed in this table received high or above average task difficulty ratings and all but one of the tasks are performed by 30 percent or more of the 472X1B (Refueling Vehicle Mechanic) first-enlistment members. Further review of Table 17 reflects that 29 of these 38 refueling vehicle-specific tasks are currently taught in the technical school. One of the tasks (S680 Remove or install refueling equipment booster heater system components) matched to the POI probably should not be included in the resident course, since it had the lowest training emphasis rating of all these tasks and was performed by only 27 percent of the 472X1B (Refueling Vehicle Mechanic) first-term members. Of the nine tasks not matched to the POI, two

TABLE 16

TRAINING EMPHASIS RATINGS FOR FIRE AND CRASH FIREFIGHTING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1A)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING	
				472X1A FIRST-ENLISTMENT (N=84)	TOTAL 47251A SAMPLE (N=152)
*R627	ISOLATE FIREFIGHTING EQUIPMENT TURRET ELECTRICAL SYSTEM MALFUNCTIONS	5.33	6.89	76	76
*R628	ISOLATE FIREFIGHTING EQUIPMENT TURRET HYDRAULIC SYSTEM MALFUNCTIONS	5.30	6.74	75	78
*R626	ISOLATE FIREFIGHTING EQUIPMENT PNEUMATIC CONTROL SYSTEM MALFUNCTIONS	5.18	6.76	64	71
*R630	ISOLATE FIREFIGHTING VEHICLE BOOSTER HEATER SYSTEM MALFUNCTIONS	5.15	7.35	64	68
*R629	ISOLATE FIREFIGHTING PUMPING SYSTEM MALFUNCTIONS	5.10	6.38	75	80
*R614	ADJUST FIREFIGHTING EQUIPMENT TURRET HYDRAULIC SYSTEM COMPONENTS	5.05	6.15	77	76
*R613	ADJUST FIREFIGHTING EQUIPMENT TURRET ELECTRICAL SYSTEM COMPONENTS	5.00	5.72	68	74
*R620	DISASSEMBLE OR ASSEMBLE FIREFIGHTING PUMPING SYSTEM VALVES	4.82	5.31	68	75
*R643	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET HYDRAULIC SYSTEM COMPONENTS	4.78	5.59	69	72
*R645	REMOVE OR INSTALL FIREFIGHTING PUMP CLUTCHES	4.75	5.99	64	71
*R615	ADJUST FIREFIGHTING PUMP PACKINGS	4.73	4.61	86	84
*R612	ADJUST FIREFIGHTING EQUIPMENT CLUTCH MODULATION OR POWER DIVIDERS	4.67	5.82	54	52
*R640	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET FOAM AND WATER SYSTEM COMPONENTS	4.65	5.6	74	73
*R641	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET CONTROL CABLES	4.62	5.22	80	77
R646	REMOVE OR INSTALL FIREFIGHTING PUMPING SYSTEM VALVES	4.62	5.20	62	70
*R624	INSTALL FIREFIGHTING EQUIPMENT TURRET CONTROL COLUMN REPAIR KITS	4.60	6.18	55	66

TABLE 16 (CONTINUED)

TRAINING EMPHASIS RATINGS FOR FIRE AND CRASH FIREFIGHTING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1A)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING	
				472X1A FIRST-ENLISTMENT (N=84)	TOTAL 47251A SAMPLE (N=152)
*R642	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TURRET ELECTRICAL SYSTEM COMPONENTS	4.60	5.20	73	74
*R655	TEST FIREFIGHTING EQUIPMENT CLUTCH MODULATION OF POWER DIVIDERS	4.58	5.58	50	62
*R637	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT PNEUMATIC DISPENSING CONTROL SYSTEM COMPONENTS	4.55	5.19	52	60
*R619	DISASSEMBLE OR ASSEMBLE FIREFIGHTING EQUIPMENT TURRET HEADS	4.48	6.01	66	72
*R654	SYNCHRONIZE FIREFIGHTING EQUIPMENT TRANSMISSION GOVERNORS	4.48	5.93	42	50
*R617	ADJUST FIREFIGHTING PUMPING SYSTEM RELIEF VALVES	4.45	4.80	69	72
R651	REPACK FIREFIGHTING PUMPS	4.45	5.25	66	73
*R622	INSPECT FIREFIGHTING EQUIPMENT WATER OR FOAM TANKS	4.37	4.54	75	81
R631	OVERHAUL FIREFIGHTING EQUIPMENT PNEUMATIC DISPENSING CONTROL SYSTEMS	4.32	6.30	47	59
*R616	ADJUST FIRE GHTING PUMPING SYSTEM PILOT VALVES	4.23	5.02	54	63
*R653	SYNCHRONIZE FIREFIGHTING EQUIPMENT ENGINE REVOLUTIONS PER MINUTE	4.20	5.88	48	53
*R621	DISASSEMBLE OR ASSEMBLE FIREFIGHTING PUMPS	4.18	6.06	57	55
*R649	REMOVE OR INSTALL FIREFIGHTING VEHICLE BOOSTER HEATER COMPONENTS	4.12	5.67	62	61
*R623	INSPECT FLUSH FOAM SYSTEMS	4.10	4.87	56	67
*R633	PHASE TURRET	4.08	5.98	54	63
*R647	REMOVE OR INSTALL FIREFIGHTING PUMPS	4.07	5.34	52	52
R648	REMOVE OR INSTALL FIREFIGHTING VEHICLE BOOSTER HEATERS	3.98	5.21	50	49
R625	ISOLATE AUXILIARY GENERATOR MALFUNCTIONS	3.92	6.94	39	36
R632	OVERHAUL FIREFIGHTING EQUIPMENT PRIMER UNITS	3.83	5.44	45	55
R652	SERVICE FIREFIGHTING EQUIPMENT DISPENSING SYSTEM LINE STRAINERS	3.82	4.08	46	53

TABLE 16 (CONTINUED)

TRAINING EMPHASIS RATINGS FOR FIRE AND CRASH FIREFIGHTING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1A)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING: 472X1A FIRST-ENLISTMENT (N=84)	PERCENT MEMBERS PERFORMING: TOTAL 47251A SAMPLE (N=152)
*R650	REMOVE OR INSTALL FIREFIGHTING VEHICLE WINTERIZATION SYSTEM COMPONENTS	3.73	5.07	55	56
R638	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT PRIMER UNITS	3.68	4.65	51	55
R635	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT HOSE REEL CONTROLS	3.67	4.56	57	53
R636	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT HOSE REELS	3.52	4.66	42	50
R634	REMOVE OR INSTALL AUXILIARY GENERATORY	3.25	5.03	32	35
R618	DISASSEMBLE OR ASSEMBLE AUXILIARY GENERATORS	3.10	6.40	33	31
R644	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT WATER OR FOAM TANKS	3.08	5.62	49	48
R639	REMOVE OR INSTALL FIREFIGHTING EQUIPMENT TANK BAFFLES	2.67	5.24	32	36

* INDICATES TASKS COVERED IN 3ABR47231A POI
** TRAINING EMPHASIS RATING OF 5.14 OR BETTER IS HIGH
*** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

TABLE 17

TRAINING EMPHASIS RATING FOR REFUELING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1B)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING 472X1B FIRST-ENLISTMENT (N=96)	PERCENT MEMBERS PERFORMING TOTAL 47251B SAMPLE (N=150)
*S670	ISOLATE REFUELING EQUIPMENT DISPENSING SYSTEM MALFUNCTIONS	6.02	7.60	77	75
S672	PERFORM REFUELING HOSE HYDROSTATIC TESTS	5.79	4.83	88	83
*S662	CALIBRATE REFUELING METERS	5.29	4.87	87	81
*S691	REMOVE OR INSTALL REFUELING PUMP ASSEMBLIES	5.27	5.11	82	77
*S671	ISOLATE REFUELING METER MALFUNCTIONS	5.23	6.44	81	75
*S689	REMOVE OR INSTALL REFUELING HOSES	5.20	3.77	93	83
*S666	DISASSEMBLE OR ASSEMBLE REFUELING PUMP ASSEMBLIES	5.18	5.79	82	76
*S664	DISASSEMBLE OR ASSEMBLE REFUELING EQUIPMENT DISPENSING SYSTEM VALVES	5.16	5.36	84	78
*S682	REMOVE OR INSTALL REFUELING EQUIPMENT FILTERS	5.09	4.65	89	83
*S659	ADJUST REFUELING EQUIPMENT DISPENSING SYSTEM VALVES	5.05	5.83	80	78
*S660	ADJUST REFUELING EQUIPMENT FLOAT CONTROL VALVES	5.05	5.22	73	71
S673	PERFORM REFUELING NOZZLE HYDROSTATIC TESTS	5.05	4.48	55	54
*S665	DISASSEMBLE OR ASSEMBLE REFUELING EQUIPMENT HOSE REEL COMPONENTS	5.04	5.08	83	78
*S661	ADJUST REFUELING EQUIPMENT HOSE REEL COMPONENTS	5.00	5.02	88	81
*S684	REMOVE OR INSTALL REFUELING EQUIPMENT HOSE REEL DRIVE COMPONENTS	4.87	5.04	77	77
*S681	REMOVE OR INSTALL REFUELING EQUIPMENT DISPENSING SYSTEM VALVES	4.82	5.33	78	77
*S675	PERFORM STATIC GROUND REEL CONTINUITY TESTS	4.79	3.34	82	81
*S690	REMOVE OR INSTALL REFUELING METER COMPONENTS	4.79	5.32	84	78
*S688	REMOVE OR INSTALL REFUELING EQUIPMENT VITAULIC COUPLINGS	4.77	3.66	92	83
S668	INSPECT REFUELING NOZZLES OR HYDRANT COUPLERS (MOOSEHEADS)	4.64	4.49	75	69
*S683	REMOVE OR INSTALL REFUELING EQUIPMENT FLOAT CONTROL VALVES	4.62	4.70	68	67
*S685	REMOVE OR INSTALL REFUELING EQUIPMENT HOSE REELS	4.59	4.72	80	75
*S692	REMOVE OR INSTALL SEGREGATOR FLOAT ASSEMBLIES	4.59	4.54	59	62
S667	INSPECT REFUELING EQUIPMENT TANK MOUNTINGS	4.57	4.06	84	81

TABLE 17 (CONTINUED)

TRAINING EMPHASIS RATING FOR REFUELING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1B)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING 472X1B FIRST-ENLISTMENT (N=96)	PERCENT MEMBERS PERFORMING TOTAL 47251B SAMPLE (N=150)
*S674	PERFORM SEGREGATOR FLOAT BALLAST CHECKS	4.46	4.61	54	57
*S693	REMOVE OR INSTALL STATIC DISCHARGE REELS	4.38	3.22	90	83
*S686	REMOVE OR INSTALL REFUELING EQUIPMENT LINE STRAINERS	4.32	3.53	84	81
S663	DISASSEMBLE OR ASSEMBLE HYDRANT COUPLERS (MOOSEHEADS)	4.30	5.57	62	53
S678	REMOVE OR INSTALL HYDRANT COUPLERS (MOOSEHEADS)	4.30	3.69	60	53
*S669	ISOLATE REFUELING EQUIPMENT BOOSTER HEATER SYSTEM MALFUNCTIONS	4.23	6.51	30	31
S687	REMOVE OR INSTALL REFUELING EQUIPMENT TANK PADS	4.11	3.90	77	73
*S676	REMOVE OR INSTALL AIR ELIMINATORS	4.09	3.59	67	59
S656	ADJUST HYDRANT COUPLERS (MOOSEHEADS)	4.07	5.09	56	50
S679	REMOVE OR INSTALL MANHOLE COVERS	4.05	3.44	76	75
*S658	ADJUST REFUELING EQUIPMENT BOOSTER HEATER SYSTEM COMPONENTS	3.96	6.54	31	31
*S677	REMOVE OR INSTALL DEFUEL KITS	3.89	3.99	63	56
*S657	ADJUST REFUELING EQUIPMENT AIR PRIORITY VALVES	3.87	4.91	63	58
*S680	REMOVE OR INSTALL REFUELING EQUIPMENT BOOSTER HEATER SYSTEM COMPONENTS	3.70	5.50	27	27

* INDICATES TASKS COVERED IN 3ABR47231B POI
** TRAINING EMPHASIS RATING OF 5.01 OR BETTER IS HIGH
*** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

(both related to hydrostatic tests) received high training emphasis ratings and all were performed by 30 percent or more of the 472X1B (Refueling Vehicle Mechanic) first-enlistment members. Because of the high percent members performing and the training emphasis ratings, resident course training on some of these nine tasks may be appropriate.

Materials Handling Equipment-Specific Tasks (AFS 472X1C). Table 18 displays the training emphasis ratings (ratings are from AFS 472X1C supervisors) for the materials handling equipment specific maintenance tasks. Nineteen out of the 22 tasks presented within this table were rated average or above average (average training emphasis ratings is 3.35) in training emphasis, although none were rated extremely high (above 5.07). The three remaining tasks received below average training emphasis rating and only three of the 22 tasks were rated high in task difficulty (above 6.00). Additionally, 15 of these materials handling equipment-specific tasks are performed by 30 percent or more 472X1C (Materials Handling Equipment Mechanic) first-term members. Table 18 also shows that 16 of these tasks are matched to the 3ABR47231C POI, indicating they are currently being taught in the technical school. Some of the tasks which are matched to the current POI are performed by less than 30 percent of the 472X1C (Materials Handling Equipment Mechanic) first-enlistment personnel and probably should not be taught in the resident technical school. Of the six tasks not matched to the POI, five are performed by 30 percent or more 472X1C (Materials Handling Equipment Mechanic) first-term members and five were rated above average in training emphasis, indicating that resident course training on some of these six tasks may be appropriate.

Towing and Servicing Vehicle-Specific Tasks (AFS 472X1D). Training emphasis ratings (ratings are from AFS 472X1D supervisors) for towing and servicing vehicle-specific maintenance tasks are presented in Table 19. Thirteen of the 24 tasks presented in this table were rated average or above average (average training emphasis rating is 3.41) in training emphasis, although none were rated extremely high (above 5.10). The remaining tasks received below average training emphasis ratings and only three tasks of the 24 were rated high in task difficulty (above 6.00). Additionally, only four of these towing and servicing vehicle-specific tasks are performed by 30 percent or more of the 472X1D (Towing and Servicing Vehicle Mechanic) first-term members. Further review of Table 19 shows that nine of these tasks are matched to the 3ABR47231D POI, indicating they are currently being taught in the technical school. Because these tasks are performed by a low number of 472X1D (Towing and Servicing Vehicle Mechanic) first-enlistment members and do not have high training emphasis ratings, resident course training on these tasks may not be appropriate. The only possible exception to this would be the four tasks, highlighted in the table, performed by 30 percent or more of the 472X1D (Towing and Servicing Vehicle Mechanic) first-enlistment members. Overall, it would appear that specialized 472X1D training is less justified than for other shredouts. This observation reinforces the conclusion drawn earlier (career jobs section and OSR) that there is some question as to how 472X1D personnel are utilized and whether they should remain a separate shred.

TABLE 18

TRAINING EMPHASIS RATINGS FOR MATERIALS HANDLING EQUIPMENT-SPECIFIC MAINTENANCE TASKS
(AFS 472X1C)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING 472X1C FIRST-ENLISTMENT (N=145)	PERCENT MEMBERS PERFORMING TOTAL 47251C SAMPLE (N=177)
*T704	INSPECT FORKLIFT MAST ASSEMBLIES	4.61	4.79	80	76
*T699	ADJUST FORKLIFT CONTROL INCHING VALVES	4.59	4.73	61	61
T698	ADJUST FORKLIFT CHAINS	4.52	4.13	72	71
*T705	ISOLATE ELECTRIC FORKLIFT ACCELERATING OR DIRECTIONAL SYSTEM MALFUNCTIONS	4.24	6.82	28	30
*T697	ADJUST ELECTRIC FORKLIFT ACCELERATING OR DIRECTIONAL SYSTEM COMPONENTS	4.21	6.14	37	38
T712	REMOVE OR INSTALL FORKLIFT CONTROL INCHING VALVES	4.15	4.99	41	45
T715	REMOVE OR INSTALL FORKLIFT MAST ASSEMBLY COMPONENTS	4.03	5.18	58	55
*T700	ADJUST FORKLIFT TILT CYLINDERS	4.02	4.44	61	54
T702	DISASSEMBLE OR ASSEMBLE ELECTRIC FORKLIFT ACCELERATING OR DIRECTIONAL SYSTEM COMPONENTS	3.97	6.08	28	29
*T696	ADJUST CARGO LOADER PLATFORM SIDE SHIFT MECHANISMS	3.90	5.03	46	40
T714	REMOVE OR INSTALL FORKLIFT MAST ASSEMBLIES	3.90	5.15	48	47
*T701	ADJUST SAFETY SEAT CONTROL COMPONENTS	3.79	4.67	29	31
*T711	REMOVE OR INSTALL ELECTRIC FORKLIFT ACCELERATING OR DIRECTIONAL SYSTEM COMPONENTS	3.74	5.51	22	27
*T703	INSPECT FORKLIFT ELECTRICAL DRIVE MOTORS	3.73	5.47	25	29
*T708	REMOVE OR INSTALL CARGO LOADER PALLET STOPS	3.65	4.13	50	49
*T707	REMOVE OR INSTALL CARGO LOADER PALLET LOCKS	3.64	4.17	53	52
*T709	REMOVE OR INSTALL CARGO LOADER PLATFORM SIDE SHIFT MECHANISM COMPONENTS	3.64	4.89	34	32
*T695	ADJUST CARGO LOADER PALLET STOP MECHANISMS	3.63	4.32	55	53
*T706	REMOVE OR INSTALL CARGO LOADER PALLET LOCK COMPONENTS	3.61	4.37	53	52
*T694	ADJUST CARGO LOADER DECK EXTENSIONS	3.09	4.94	26	24
T713	REMOVE OR INSTALL FORKLIFT COUNTER WEIGHTS	3.04	4.26	43	41
*T710	REMOVE OR INSTALL CARGO LOADER PLATFORMS	2.78	5.50	15	15

* INDICATES TASKS COVERED IN 3ABR47231C POI
** TRAINING EMPHASIS RATING OF 5.07 OR BETTER IS HIGH
*** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

TABLE 19

TRAINING EMPHASIS RATINGS FOR TOWING AND SERVICING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1D)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING 472X1D FIRST-ENLISTMENT (N=144)	PERCENT MEMBERS PERFORMING TOTAL 47251D SAMPLE (N=182)
*U726	ISOLATE HI-LIFT CONTROL SYSTEM MALFUNCTIONS	4.10	6.39	24	24
*U718	ADJUST SERVICING EQUIPMENT BOOM ASSEMBLY SAFETY DEVICES	3.87	5.82	31	30
U732	REMOVE OR INSTALL SERVICING EQUIPMENT BOOM ASSEMBLY SAFETY DEVICES	3.84	5.47	20	24
*U727	ISOLATE SERVICING EQUIPMENT BOOSTER HEATER SYSTEM MALFUNCTIONS	3.75	6.54	18	21
*U716	ADJUST HI-LIFT CONTROL SYSTEM COMPONENTS	3.72	5.58	24	26
*U728	ISOLATE SERVICING EQUIPMENT DISPENSING SYSTEM MALFUNCTIONS	3.72	6.28	19	22
*U724	INSPECT SERVICING EQUIPMENT AERIAL WORK PLATFORMS	3.71	4.94	32	31
U720	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT BOOSTER HEATER SYSTEM COMPONENTS	3.68	5.95	18	20
*U725	INSPECT SERVICING EQUIPMENT BOOM ASSEMBLIES	3.65	5.25	36	37
*U717	ADJUST SERVICING EQUIPMENT BOOM ASSEMBLY CONTROLS	3.60	5.65	37	32
U735	REMOVE OR INSTALL SERVICING EQUIPMENT BOOSTER HEATER SYSTEM COMPONENTS	3.58	5.69	18	20
U730	REMOVE OR INSTALL HI-LIFT CONTROL SYSTEM COMPONENTS	3.48	5.39	18	20
U736	REMOVE OR INSTALL SERVICING EQUIPMENT DISPENSING SYSTEM VALVES	3.41	5.45	19	23
U733	REMOVE OR INSTALL SERVICING EQUIPMENT BOOM ASSEMBLY COMPONENTS	3.34	5.43	22	24
U721	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT DISPENSING SYSTEM VALVES	3.26	5.77	22	24
U737	REMOVE OR INSTALL SERVICING EQUIPMENT DISPENSING SYSTEM NOZZLES	3.19	4.65	15	19
U723	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT HOSE REEL COMPONENTS	3.17	4.99	16	19
U731	REMOVE OR INSTALL SERVICING EQUIPMENT AERIAL WORK PLATFORMS	3.17	5.38	13	15
U739	REMOVE OR INSTALL SERVICING EQUIPMENT TURRET HEADS	3.12	5.00	6	7

TABLE 19 (CONTINUED)

TRAINING EMPHASIS RATINGS FOR TOWING AND SERVICING VEHICLE-SPECIFIC MAINTENANCE TASKS
(AFS 472X1D)

TASKS		TRAINING EMPHASIS**	TASK DIFFICULTY***	PERCENT MEMBERS PERFORMING 472X1D FIRST-ENLISTMENT (N=144)	PERCENT MEMBERS PERFORMING TOTAL 47251D SAMPLE (N=182)
U734	REMOVE OR INSTALL SERVICING EQUIPMENT BOOM ASSEMBLIES	3.07	5.62	12	17
U722	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT TURRET HEADS	3.01	5.57	8	9
*U719	ADJUST SERVICING EQUIPMENT TURRET HEADS	2.95	5.35	11	13
U738	REMOVE OR INSTALL SERVICING EQUIPMENT HOSE REELS	2.93	4.51	17	18
U729	REMOVE OR INSTALL DRAW BARS	2.48	4.31	3	5

* INDICATES TASKS COVERED IN 3ABR47231D POI
** TRAINING EMPHASIS RATING OF 5.10 OR BETTER IS HIGH
*** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

Three- and Five-Skill Level Specialty Training Standard (STS)

The 3- and 5-skill level STS for AFSs 472X1A/B/C/D, dated October 1979, is composed of a common section and four shredout-specific paragraphs. Paragraphs 1 through 18 apply to 3- and 5-skill level members in each of the four shredouts, while paragraphs 19 through 22 apply to members in only one the shredouts. The STS-specific paragraphs and the shredouts to which these paragraphs apply are:

Paragraph 19 - A-Shred (Firetrucks)
Paragraph 20 - B-Shred (Refueling Vehicles)
Paragraph 21 - C-Shred (Materials Handling Equipment)
Paragraph 22 - D-Shred (Towing and Servicing Vehicles)

The common and shredout-specific paragraphs of the STS were reviewed, comparing the STS sections to survey data. Paragraphs containing general information or subject-matter proficiency requirements in either the common section or the shredout-specific portions were not evaluated. Due to the construction of this STS, the common elements and the shredout-specific elements will be discussed separately.

AFS 472X1A/B/C/D Common Paragraphs (Paragraphs 1 through 18). Generally, the common portion of the 3- and 5-skill level 472X1A/B/C/D STS provides thorough coverage of the nonvehicle-specific function performed by Special Vehicle Mechanics (AFSs 472X1A/B/C/D). Most of these common STS paragraphs and subparagraphs were supported by the survey data. Based on the survey data, only the areas discussed below were in need of some review.

There were a few cases in the common portion of the STS where the tasks matched to a particular STS item did not have high numbers of first-enlistment or 5-skill level members in any of the four shredouts performing them. The tasks matched to STS items pertaining to corrosion-control procedures (paragraph 9a), warranty and latent defect policies (paragraph 9e), and troubleshooting of engine emission-control components (paragraph 12f(6)) were performed by less than 30 percent of the first-enlistment or 5-skill level members in each of the Special Vehicle Mechanic (AFSs 472X1A/B/C/D) specialties. Additionally, some paragraphs had tasks referenced to them which were performed by less than 30 percent of the members in one or more of the shredouts, yet were performed by 30 percent or more of the members in other shredouts. These STS paragraphs dealt with publication files (paragraph 4c), maintenance data collection forms (paragraph 7b), manhour accounting forms (paragraphs 7d and e), and winterizing vehicles (paragraph 9b). Career field managers and training personnel should review these areas of the STS to reaffirm the appropriateness of code levels assigned for 5-skill level career ladder personnel.

Paragraphs in the common portion of the STS with task performance proficiency codes assigned and not having inventory tasks matched to them included:

12f(5) Troubleshoot engine exhaust systems
18c Disassemble mechanical and power steering systems components
18d Reassemble mechanical and power steering systems components

These items may have no matched tasks because the applicable task was overlooked in the matching process, the element is inappropriately coded as a performance item rather than a knowledge item, or there are no clearly defined inventory tasks appropriate to that element. Subject-matter specialists and training personnel should review these elements in detail, assuring inclusion in the STS is justified. If that is the case, the possible reason for the unmatched elements discussed above should be pursued and necessary adjustment made. If it is determined there are no tasks in the inventory which can be matched to a valid performance element, it is requested that subject-matter specialists draft the appropriate task statements and forward them to the Occupational Measurement Center (OMC) for review and use in the next inventory rewrite.

Finally, nonvehicle-specific tasks not matched to the entire STS are performed by 30 percent of more of the first-enlistment or 5-skill level personnel in each of the four shredouts are displayed in Table 20. These were reviewed to determine if they were concentrated around a common function or piece of equipment. The only trends noted were that three of the tasks (I258, I278, and I300) were related to liquid quantity units and two (N474 and N499) dealt with wheel bearings. Subject-matter specialists and training personnel should evaluate these tasks to determine if coverage in the STS is justified.

AFS 472X1A - Firetruck Mechanic-Specific STS Paragraph (Paragraph 19). Overall, the firetruck-specific section of the STS provides comprehensive coverage of the vehicle-specific functions performed by AFS 472X1A (Firetruck Mechanic) members. Only one subparagraph, 19a(4) (Corrosion-preventive treatment of foam and water storage tanks), with a performance proficiency code assigned did not have any tasks matched to it. This subparagraph should be reviewed by subject-matter specialists to determine if its inclusion in the STS is justified. If it is a valid performance element and there are no tasks in the inventory which can be matched to this subparagraph, it is requested that the applicable task statement or statements be drafted and forwarded to OMC for review. Additionally, some tasks performed by 30 percent or more of the first-enlistment or 5-skill level AFS 472X1A (Firetruck Mechanic) personnel were not referenced to the current STS. These tasks are displayed in Tables 20 and 21 and should be reviewed by subject-matter and training specialists to determine if they should be included during the next STS revision. (Additional tasks not referenced can be found at the end of the STS computer printout in the AFS 472X1A Training Extract.)

TABLE 20

TASKS NOT REFERENCED TO THE AFS 472X1A/B/C/D STS
AND PERFORMED BY 30 PERCENT OR MORE OF FIRST-ENLISTMENT
PERSONNEL IN EACH SPECIAL VEHICLE MECHANIC SPECIALTY

TASKS	
C72	ANALYZE CAUSES OF VEHICLE FAILURES
G203	PERFORM SOFT SOLDERING
G206	REMOVE BROKEN STUDS OR CAP SCREWS
H229	REMOVE OR INSTALL EXPANSION PLUGS
I258	ADJUST LIQUID QUANTITY SENDING UNITS
I278	ISOLATE LIQUID QUANTITY INDICATOR SYSTEM MALFUNCTIONS
I281	MANUFACTURE ELECTRICAL WIRING HARNESSES
I300	REMOVE OR INSTALL LIQUID QUANTITY SENDING UNITS
I310	REMOVE OR INSTALL VEHICLE GAUGE PANEL UNITS
J342	REMOVE OR INSTALL PNEUMATIC SYSTEM AIR COMPRESSORS
M460	REMOVE OR INSTALL SPEEDOMETER CABLE ASSEMBLIES
N474	ADJUST WHEEL BEARINGS
N499	REMOVE OR INSTALL FRONT WHEEL BEARINGS
O535	MANUFACTURE BRAKE HOSES OR LINES

TABLE 21

TASKS NOT REFERENCED TO THE AFS 472X1A/B/C/D STS AND PERFORMED BY 30 PERCENT OR MORE OF 5-SKILL LEVEL OR FIRST-ENLISTMENT 472X1A (FIRETRUCK MECHANIC) PERSONNEL

TASKS		TRAINING EMPHASIS*	PERCENT MEMBERS PERFORMING		TASK DIFFICULTY**
			472X1A FIRST-ENLISTMENT (N=84)	DAFSC 47251A (N=152)	
K369	INTERPRET EMISSION CONTROL SYSTEM DIAGRAMS OR SCHEMATICS	5.17	35	29	5.91
J341	REMOVE OR INSTALL PNEUMATIC MOTORS	4.48	29	39	4.07
R654	SYNCHRONIZE FIREFIGHTING EQUIPMENT TRANSMISSION GOVERNORS	4.48	42	50	5.93
R653	SYNCHRONIZE FIREFIGHTING EQUIPMENT ENGINE REVOLUTIONS PER MINUTE	4.20	48	53	5.88
J346	SERVICE PNEUMATIC MOTORS	4.17	25	34	4.22
E150	POST ENTRIES TO OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORMS	4.03	23	38	2.93
C78	CONDUCT VEHICLE QUALITY CONTROL INSPECTIONS	3.88	14	38	5.15
E156	POST ENTRIES TO VEHICLE HISTORICAL RECORD FORMS (AF FORM 1828)	3.53	23	42	3.92
E145	MAINTAIN WORK CONTROL LOGS OR WORK STATUS BOARDS	3.12	17	32	5.09
V740	ADJUST HINGES OR LOCKING MECHANISMS	2.40	25	32	4.97

* TRAINING EMPHASIS RATING OF 5.14 OR BETTER IS HIGH
** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

AFS 472X1B - Refueling Vehicle Mechanic-Specific STS Paragraph (Paragraph 20). The refueling vehicle-specific section of the 472X1A/B/C/D STS generally provides thorough coverage of the specialized functions performed by AFS 472X1B (Refueling Vehicle Mechanic) personnel. Of the 27 subparagraphs with performance proficiency codes assigned, the ones presented in Table 22 had no tasks matched to them. These areas dealt with such items as troubleshooting or performing required maintenance on by-pass and evacuation systems, plus troubleshooting defuel, bottom loading, or filter systems and components. As mentioned before, subparagraphs with performance proficiency codes and no matched tasks, such as those listed in Table 22, should be reviewed to determine if they should be included in the STS. If it is determined these paragraphs contain valid performance items, the possible reason for the unmatched elements discussed earlier should be pursued and the necessary adjustment made. Finally, some tasks were not matched to any element of the STS, yet were performed by 30 percent or more of the 5-skill level or first-term Refueling Vehicle Mechanics (AFS 472X1B) (see Tables 20 and 23). Some of the tasks displayed in Table 23 dealt with refueling vehicle-specific systems with four related directly to hydrant couplers. No other trends or functional grouping of these tasks were noted. Training personnel and subject-matter specialists should evaluate these tasks to determine if coverage in the STS is justified. (Additional tasks not referenced can be found at the end of the STS computer printout in the AFS 472X1B Training Extract).

AFS 472X1C - Materials Handling Equipment Mechanic-Specific STS Paragraph (Paragraph 21). Although the materials handling equipment-specific section of the STS provides good coverage of most functions performed by AFS 472X1C (Materials Handling Equipment Mechanic) members, there are some areas which should be addressed. First, as shown in Table 24, there were a few cases where the tasks matched to a particular STS item did not have high numbers of first-enlistment or 5-skill level AFS 472X1C (Materials Handling Equipment Mechanic) personnel performing them. These STS areas were related to troubleshooting forklift electrical systems and performing required maintenance on heaters. Career field managers, as well as training personnel, should review these areas to reaffirm the appropriateness of the code levels assigned for 5-skill level personnel. Additionally, the following three subparagraphs had performance proficiency codes assigned and did not have tasks matched to them.

21b(1)b	Troubleshoot hydraulic systems on forklifts
21b(2)b	Perform required maintenance on hydraulic system of forklifts
21c(1)	Troubleshoot cargo loaders and components

These subparagraphs should be reviewed by subject-matter specialists to determine if their inclusion in the STS is justified. If it is determined these subparagraphs contain valid performance items and should be included in the STS, the possible reason for the unmatched elements discussed earlier should be pursued and the necessary adjustments made. Finally, only three tasks, in addition to the tasks listed in Table 20, were performed by 30 percent or

TABLE 22

AFS 472X1B (REFUELING VEHICLE MECHANIC) SPECIFIC STS ELEMENTS WITHOUT MATCHING TASKS (STS ITEM 20)

STS ELEMENTS		PROFICIENCY CODES 3-SKILL LEVEL	5-SKILL LEVEL
20b(1)(c)	Complete purging of fuel system to include tank	-	3c
20b(2)(b)	Troubleshoot filter system and components	2b	3c
20b(3)(b)	Troubleshoot by-pass system and components	2b	3c
20b(3)(c)	Perform required maintenance on by-pass system	2b	3c
20b(4)(b)	Troubleshoot main line system and components	2b	3c
20b(5)(b)	Troubleshoot evacuation system and components	2b	3c
20b(5)(c)	Perform required maintenance on evacuation system	2b	3c
20b(6)(b)	Troubleshoot defuel system and components	2b	3c
20b(8)(b)	Troubleshoot hosereel components	2b	3c
20d(2)	Troubleshoot bottom loading system and components	2b	3c
20f(2)	Troubleshoot static ground reels	2b	3c

TABLE 23

TASKS NOT REFERENCED TO THE AFS 472X1A/B/C/D STS AND PERFORMED BY 30 PERCENT OR MORE OF 5-SKILL LEVEL OR FIRST-ENLISTMENT 472X1B (REFUELING VEHICLE MECHANIC) PERSONNEL

TASKS		TRAINING EMPHASIS*	PERCENT MEMBERS PERFORMING		TASK DIFFICULTY**
			472X1B FIRST-ENLISTMENT (N=96)	DAFSC 47251B (N=150)	
0524	ADJUST SLACK ADJUSTERS	5.54	58	60	4.15
S673	PERFORM REFUELING NOZZLE HYDROSTATIC TESTS	5.05	55	54	4.48
N492	REMOVE OR INSTALL CONSTANT VELOCITY UNIVERSAL JOINTS	4.89	33	35	5.32
S668	INSPECT REFUELING NOZZLES OR HYDRANT COUPLERS (MOOSEHEADS)	4.64	75	69	4.49
J343	REMOVE OR INSTALL PNEUMATIC SYSTEM VALVES	4.41	41	47	4.14
E153	POST ENTRIES TO REFUELING HOST INSTALLATION AND HYDROSTATIC TEST DATA RECORD FORMS (AF FORM 1830)	4.34	33	46	3.69
S663	DISASSEMBLE OR ASSEMBLE HYDRANT COUPLERS (MOOSEHEADS)	4.30	62	53	5.57
S678	REMOVE OR INSTALL HYDRANT COUPLERS (MOOSEHEADS)	4.30	60	53	3.69
J336	OVERHAUL PNEUMATIC SYSTEM VALVES	4.23	37	43	5.57
S687	REMOVE OR INSTALL REFUELING EQUIPMENT TANK PADS	4.11	77	73	3.90
E150	POST ENTRIES TO OPERATOR'S INSPECTION GUIDE AND TROUBLE REPORT FORMS	4.07	18	32	3.09
E154	POST ENTRIES TO REFUELING EQUIPMENT INSPECTION DATA RECORD FORMS (AF FORM 1829)	4.07	28	43	3.69
S656	ADJUST HYDRANT COUPLERS (MOOSEHEADS)	4.07	56	50	5.09
E156	POST ENTRIES TO VEHICLE HISTORICAL RECORD FORMS (AF FORM 1828)	3.95	30	43	3.78
C78	CONDUCT VEHICLE QUALITY CONTROL INSPECTIONS	3.57	22	41	5.21
E145	MAINTAIN WORK CONTROL LOGS OR STATUS BOARDS	3.25	23	37	4.73
E164	SCHEDULE VEHICLE INSPECTIONS	2.57	13	22	4.55

* TRAINING EMPHASIS RATING OF 5.01 OR BETTER IS HIGH
** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

TABLE 24

TASKS PERFORMED BY LESS THAN 30 PERCENT OF 472X1C (MATERIALS HANDLING EQUIPMENT MECHANIC)
FIRST-ENLISTMENT AND 5-SKILL LEVEL PERSONNEL
(SUGGESTED FOR STS-LEVEL REVIEW)

STS REFERENCE	TASKS		5-SKILL LEVEL STS CODE	TRAINING EMPHASIS*	TASK DIFFICULTY**	PERCENT MEMBERS PERFORMING	
						472X1D FIRST-ENLISTMENT (N=145)	DAFSC 47251D (N=177)
21b(1)(a)	T711	REMOVE OR INSTALL ELECTRIC FORKLIFT ACCELERATION OR DIRECTIONAL SYSTEM COMPONENTS	3c	3.74	5.51	22	27
21B(1)(a)	T703	INSPECT FORKLIFT ELECTRICAL DRIVE MOTORS	3c	3.73	5.47	25	29
21d(2)	L410	ISOLATE GAS HEATING SYSTEM MALFUNCTIONS	3c	3.60	5.71	17	22
21d(2)	L420	REMOVE OR INSTALL GAS HEATING SYSTEM COMPONENTS	3c	3.44	4.99	18	22

* TRAINING EMPHASIS RATING OF 5.07 OR BETTER IS HIGH
** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

more of the first-enlistment Materials Handling Equipment Mechanics (AFS 472X1C) and were not referenced to the STS. (Additional tasks not referenced can be found at the end of the STS computer printout in the AFS 472X1C Training Extract.) Specifically, these three tasks were:

G197 Operate cutting torches
G196 Mechanically straighten bent of twisted metal parts
G191 Heat straighten bent or twisted metal parts

These three, along with the tasks listed in Table 20, should be reviewed by subject-matter specialists to determine if coverage in the STS is justified.

AFS 472X1D - Towing and Servicing Vehicle Mechanic Specific STS Paragraph (Paragraph 22). The towing and servicing vehicle-specific section of the STS was not as well supported by survey data as were the other three vehicle-specific paragraphs. This is probably because towing and servicing vehicle mechanics are not as specialized as are members in the other Special Vehicle Mechanics specialties (AFSs 472X1A/B/C). Not as many of the AFS 472X1D (Towing and Servicing Vehicle Mechanic) members perform their shredout-specific tasks as do members in the three other Special Vehicle Mechanics (AFSs 472X1A/B/C) specialties. For instance, of the eight subparagraphs with matched tasks, seven had tasks referenced to them that were not performed by high numbers of first-enlistment or 5-skill level 472X1D (Towing and Servicing Vehicle Mechanic) members. These tasks and the STS subparagraphs to which they were referenced are presented in Table 25. Primarily, these STS areas dealt with troubleshooting and adjusting various aircraft-servicing vehicle systems. Due to the low percentage of members performing the tasks referenced to STS subparagraphs listed in Table 25, training personnel and career field managers should review these elements to reaffirm the appropriateness of the code levels assigned for 5-skill level personnel. Additionally, of the 15 items with assigned performance proficiency codes, seven did not have tasks matched to them. These subparagraphs are presented in Table 26 and were related to the maintenance of various components on towing tractors. As mentioned before, subparagraphs with performance proficiency codes and no matched tasks, such as those listed in Table 26, should be reviewed to determine if their inclusion in the STS is justified. The possible reasons for the unmatched elements discussed earlier should then be pursued and the necessary adjustments made. Finally, some tasks performed by 30 percent or more of the 5-skill level or first-enlistment Towing and Servicing Vehicle Mechanics (AFS 472X1D) were not matched to the STS (see Tables 20 and 27). Three of the tasks displayed in Table 27 involved maintenance of forklifts. Subject-matter and training specialists should review the tasks displayed in both tables to determine if they should be covered in the STS. (Additional tasks not referenced can be found at the end of the STS computer printout in the AFS 472X1D Training Extract.)

TABLE 25

TASKS PERFORMED BY LESS THAN 30 PERCENT OF 472X1D (TOWING AND SERVICING VEHICLE MECHANIC)
FIRST-ENLISTMENT AND 5-SKILL LEVEL PERSONNEL
(SUGGESTED FOR STS-LEVEL REVIEW)

STS REFERENCE	TASKS	5-SKILL LEVEL STS CODE	TRAINING EMPHASIS*	TASK DIFFICULTY**	PERCENT MEMBERS PERFORMING 472X1D FIRST-ENLISTMENT (N=144)	PERCENT MEMBERS PERFORMING DAFSC 47251D (N=182)
22a(4)/ 22a(5)	U721 DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT DISPENSING SYSTEM VALVES	3c	3.26	5.77	22	24
22b(2)(a)	U728 ISOLATE SERVICING EQUIPMENT DISPENSING SYSTEM MALFUNCTIONS	3c	3.72	6.28	19	22
22b(2)(b)	L407 INSPECT GAS HEATING SYSTEM COMPONENTS	3c	4.05	5.27	18	16
22b(2)(b)	L410 ISOLATE GAS HEATING SYSTEM MALFUNCTIONS	3c	3.77	5.62	13	12
22b(2)(b)	U727 ISOLATE SERVICING EQUIPMENT BOOSTER HEATER SYSTEM MALFUNCTIONS	3c	3.75	6.54	18	21
22b(2)(b)	L420 REMOVE OR INSTALL GAS HEATING SYSTEM COMPONENTS	3c	3.44	4.98	14	12
22b(2)(c)	U726 ISOLATE HI-LIFT CONTROL SYSTEM MALFUNCTIONS	3c	4.10	6.39	24	24
22b(3)(a)/ 22b(3)(b)	U716 ADJUST HI-LIFT CONTROL SYSTEM COMPONENTS	3c	3.72	5.58	24	26
22b(3)(a)	U719 ADJUST SERVICING EQUIPMENT TURRET HEADS	3c	2.95	5.35	11	13
22b(3)(b)	L400 ADJUST TEMPERATURE CONTROLS	3c	3.98	4.51	20	17

* TRAINING EMPHASIS RATING OF 5.10 OR BETTER IS HIGH
** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

TABLE 26

AFS 472X1D (TOWING AND SERVICING VEHICLE MECHANIC) SPECIFIC STS ELEMENTS WITHOUT MATCHING TASKS (STS ITEM 22)

STS ELEMENTS		PROFICIENCY CODES 3-SKILL LEVEL	5-SKILL LEVEL
22a(2)	Troubleshoot power trains on towing tractors	2b	3c
22a(3)	Remove and replace components on towing tractors	2b/-	3c
22a(6)(a)	Service torque converter on towing tractors	2b	3c
22a(6)(b)	Service transfer case on towing tractors	2b	3c
22a(6)(c)	Service transmission on towing tractors	2b	3c
22a(7)(a)	Adjust transfer case on towing tractors	2b	3c
22a(7)(b)	Adjust transmission on towing tractors	2b	3c

TABLE 27

TASKS NOT REFERENCED TO THE AFS 472X1A/B/C/D STS AND PERFORMED BY 30 PERCENT OR MORE OF 5-SKILL LEVEL OR FIRST-ENLISTMENT 472X1D (TOWING AND SERVICING VEHICLE MECHANIC) PERSONNEL

TASKS		TRAINING EMPHASIS*	PERCENT MEMBERS PERFORMING		TASK DIFFICULTY**
			472X1D FIRST-ENLISTMENT (N=144)	DAFSC 47251D (N=182)	
0524	ADJUST SLACK ADJUSTERS	5.97	67	65	3.93
T704	INSPECT FORKLIFT MAST ASSEMBLIES	4.31	42	41	4.87
T698	ADJUST FORKLIFT CHAINS	4.29	37	35	4.23
G197	OPERATE CUTTING TORCHES	3.88	28	31	5.15
P558	DISMOUNT OR MOUNT HEAVY DUTY TIRES	3.61	33	28	4.26
T714	REMOVE OR INSTALL FORKLIFT MAST ASSEMBLIES	3.55	31	28	5.22
P559	DISMOUNT OR MOUNT LIGHT DUTY TIRES	3.35	33	30	3.37
G196	MECHANICALLY STRAIGHTEN BENT OR TWISTED METAL PARTS	3.20	44	37	5.69

* TRAINING EMPHASIS RATING OF 5.10 OR BETTER IS HIGH
** TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

47271 Specialty Training Standard (STS)

Since the Base Vehicle Equipment Mechanic (AFS 472X0) and Special Vehicle Mechanic (AFSs 472X1A/B/C/D) specialties merge at the 7-skill level into AFSC 47271, there is a separate STS for 7-skill level members. Therefore, in addition to reviewing the 3- and 5-skill level STS, the 47271 STS, dated June 1980, was reviewed, comparing STS items to survey data. The 47271 STS provides comprehensive coverage of the significant jobs performed by 7-skill level personnel. Generally, the STS items dealing with supervisory, managerial, and administrative functions were supported by percent members performing data. Besides these supervisory and management tasks, 7-skill level personnel perform a wide variety of technical tasks although many of these technical tasks were performed by a low percentage of members. The portion of the STS related to the technical jobs performed by 47271 personnel provides thorough coverage of the technical tasks performed by these members. Many tasks matched to a particular STS item, however, did not have high numbers of 7-skill level members performing them. These STS areas dealt with such items as final drives, sweeper mechanisms, sliding gear and power shift transmissions, and auxiliary heaters. Table 28 displays example tasks performed by less than 30 percent of DAFSC 47271 members and the STS items to which these tasks were matched. Other elements with low percent members performing include subparagraphs within items 4, 5, and 8, plus additional subparagraphs in item 11. Because this is a 7-skill level STS, the high proficiency codes may be warranted since 7-skill level members may supervise performance of these items. Career field managers, training personnel, and subject-matter specialists, however, should review these areas of the STS to reaffirm the appropriateness of proficiency code levels assigned for 7-skill level personnel.

Paragraphs in the STS with task performance proficiency codes assigned and not having inventory tasks matched to them included:

9a(1) Apply corrosion control procedures
9a(2) Winterize vehicles
9a(4) Prepare vehicles for shipment

These items may have no matched tasks because the applicable task was overlooked in the matching process, the element is inappropriately coded as a performance item rather than a knowledge item, or there are no clearly defined inventory tasks appropriate to that element. The items should be reviewed in detail by subject matter specialists and training personnel to determine if inclusion in the STS is justified. (If no tasks in the inventory can be matched to a valid STS performance element, it is requested that subject-matter specialists draft the appropriate task statements and forward them to the Occupational Measurement Center for review and use in the next inventory rewrite.)

Finally, tasks displayed in Table 29 were not matched to any STS element and are performed by 10 percent or more of DAFSC 47271 personnel. Generally, most of these tasks were related to performing section maintenance control and administrative functions, performing general maintenance and

TABLE 28

SAMPLE TASKS PERFORMED BY LESS THAN 30 PERCENT OF DAFSC 47271 PERSONNEL
(SUGGESTED FOR STS CODE LEVEL REVIEW)

STS REFERENCE	TASKS		7-SKILL LEVEL STS CODE	TASK DIFFICULTY*	PERCENT DAFSC 47271 PERFORMING (N=333)
9a(3)	G204	PREPARE VEHICLES FOR STORAGE	4c	4.27	21
9d	C100	INSPECT VEHICLE MAINTENANCE FOR COMPLIANCE WITH WARRANTY POLICIES	4c	4.84	19
11g(2)	M438	DISASSEMBLE OR ASSEMBLE ACCESSORY DRIVES, AUXILLARY GEAR BOXES, OR AUXILIARY TRANSFERS	4c	6.25	14
11g(2)	N476	DISASSEMBLE OR ASSEMBLE TRANSFER CASES	4c	5.94	14
11g(2)	N518	REMOVE OR INSTALL TRANSFER CASES	4c	4.82	19
11g(2)	M450	REMOVE OR INSTALL ACCESSORY DRIVES, AUXILIARY GEAR BOXES, OR AUXILIARY TRANSFERS	4c	4.68	16
11g(2)	N473	ADJUST TRANSFER CASE LINKAGE OR CONTROLS	4c	4.11	21
11g(2)	M463	SERVICE ACCESSORY DRIVES, AUXILIARY GEAR BOXES, OR AUXILIARY TRANSFERS	4c	3.97	19
11g(7)	M456	REMOVE OR INSTALL FLUID COUPLINGS OR TORQUE CONVERTERS	4c	4.78	13
11g(7)	M443	FLUSH TORQUE CONVERTER UNITS	4c	4.60	8
111	Q589	REMOVE OR INSTALL CRANE BRAKES OR CLUTCHES	4c	6.14	7
111	Q588	REMOVE OR INSTALL CRANE BOOMS	4c	6.02	5
111	Q207	REMOVE OR INSTALL BOOM CROWD OR RETRACT MECHANISM COMPONENTS	4c	5.95	6
111	Q596	REMOVE OR INSTALL HOIST CLOSING LINE CLUTCHES OR BRAKING SYSTEMS	4c	5.94	5
111	Q594	REMOVE OR INSTALL GANTRY COMPONENTS	4c	5.61	3
111	Q572	ADJUST CRANE BRAKES OR CLUTCHES	4c	5.58	11
111	Q590	REMOVE OR INSTALL CRANE FAIRLEAD ASSEMBLIES	4c	5.44	3
11p(3)	U728	ISOLATE SERVICING EQUIPMENT DISPENSING SYSTEM MALFUNCTIONS	4c	6.56	6

TABLE 28 (CONTINUED)

SAMPLE TASKS PERFORMED BY LESS THAN 30 PERCENT OF DAFSC 47271 PERSONNEL
(SUGGESTED FOR STS CODE LEVEL REVIEW)

STS REFERENCE	TASKS		7-SKILL LEVEL STS CODE	TASK DIFFICULTY*	PERCENT DAFSC 47271 PERFORMING (N=333)
11p(3)	U721	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT DISPENSING SYSTEM VALVES	4c	5.91	3
11p(3)	U722	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT TURRET HEADS	4c	5.56	1
11p(3)	U719	ADJUST SERVICING EQUIPMENT TURRET HEADS	4c	5.48	1
11p(3)	U736	REMOVE OR INSTALL SERVICING EQUIPMENT DISPENSING SYSTEM VALVES	4c	5.19	4
11p(3)	U739	REMOVE OR INSTALL SERVICING EQUIPMENT TURRET HEADS	4c	4.86	2
11p(3)	U723	DISASSEMBLE OR ASSEMBLE SERVICING EQUIPMENT HOSE REEL COMPONENTS	4c	4.85	4
11p(3)	U738	REMOVE OR INSTALL SERVICING EQUIPMENT HOSE REELS	4c	4.46	3
11p(3)	U737	REMOVE OR INSTALL SERVICING EQUIPMENT DISPENSING SYSTEM NOZZLES	4c	4.43	3
11s(2)	Q583	REBUILD SNOWPLOW ATTACHMENTS	4c	5.95	8
11s(2)	Q579	ADJUST SNOWPLOW ATTACHMENTS	4c	5.31	8
11s(2)	Q606	REMOVE OR INSTALL SNOWPLOW ATTACHMENTS	4c	5.08	9
11s(2)	Q595	REMOVE OR INSTALL GROUND SHOES	4c	4.76	3
11s(2)	Q602	REMOVE OR INSTALL MOLDBOARDS	4c	4.27	5

* TASK DIFFICULTY RATING OF 5.00 IS AVERAGE

TABLE 29

TASKS NOT REFERENCED TO STS 47271*
(10 PERCENT OR MORE 47271 PERSONNEL PERFORMING)

TASKS	
G195	MANUFACTURE SPECIAL TOOLS
G183	ARC-WELD MILD STEEL
F165	COORDINATE WITH BASE SUPPLY TO RESOLVE SUPPLY PROBLEMS
G200	OXACETYLENE-WELD SHEET METAL
E141	EDIT COMPUTERIZED MAINTENANCE LISTINGS
G186	BRAZE SHEET METAL
E158	PREPARE REQUESTS FOR DEPOT MAINTENANCE
F176	VERIFY CONTRACT OPERATED AUTOMOTIVE PARTS STORE
G196	MECHANICALLY STRAIGHTEN BENT OR TWISTED METAL PARTS
G191	HEAT STRAIGHTEN BENT OR TWISTED METAL PARTS
G202	PERFORM SILVER SOLDERING
F166	ESTABLISH INVENTORIES OF HIGH TURNOVER ITEMS
G197	OPERATE CUTTING TORCHES
G206	REMOVE BROKEN STUDS OR CAP SCREWS
G214	WELD EXHAUST SYSTEM COMPONENTS
F170	MAINTAIN DEFERRED OR DELAYED PARTS BOARDS OR RECORDS
E145	MAINTAIN WORK CONTROL LOGS OR WORK STATUS BOARDS
F172	POST ENTRIES TO ADJUST STOCK LEVEL FORMS (AF FORM 1996)
E142	INITIATE VEHICLE ACCIDENT OR ABUSE LETTERS
F177	VERIFY DUE-IN FROM MAINTENANCE (DIFM) DOCUMENT LISTINGS (R-26)
I253	ADJUST DISTRIBUTOR COMPONENTS OTHER THAN IGNITION POINTS
J324	ADJUST PNEUMATIC SYSTEM AIR COMPRESSOR PRESSURE GOVERNORS
V740	ADJUST HINGES OR LOCKING MECHANISMS
E161	PREPARE VEHICLE STATUS REPORTS
P558	DISMOUNT OR MOUNT HEAVY DUTY TIRES
M457	REMOVE OR INSTALL MECHANICAL SHIFTER ASSEMBLY COMPONENTS
G203	PERFORM SOFT SOLDERING
J341	REMOVE OR INSTALL PNEUMATIC MOTORS
J346	SERVICE PNEUMATIC MOTORS
T698	ADJUST FORKLIFT CHAINS
M448	MANUFACTURE SPEEDOMETER CABLES
E157	POST ENTRIES TO WORK ORDER STATUS CARD FORMS (AF FORM 1824)
J347	SERVICE PNEUMATIC SYSTEM FILTERS OR STRAINERS
F169	ISSUE STOCKS OF HIGH VALUE ITEMS
E153	POST ENTRIES TO REFUELING EQUIPMENT HOIST INSTALLATION AND HYDROSTATIC TEST DATA RECORD FORMS (AF FORM 1830)
E154	POST ENTRIES TO REFUELING EQUIPMENT INSPECTION DATA RECORD FORMS (AF FORM 1829)
P559	DISMOUNT OR MOUNT LIGHT DUTY TIRES
E152	POST ENTRIES TO RECORD OF CANNIBALIZATION (VEHICLE MAINTENANCE) FORMS (AF FORM 1832)
E151	POST ENTRIES TO PART CARD FORMS (AF FORM 1829)
M460	REMOVE OR INSTALL SPEEDOMETER CABLE ASSEMBLIES

TABLE 29 (CONTINUED)

TASKS NOT REFERENCED TO STS 47271*
(10 PERCENT OR MORE 47271 PERSONNEL PERFORMING)

TASKS	
P568	PLUG TIRES
P565	LEAK TEST TIRES OR TUBES
P570	REMOVE OR INSTALL VALVE STEMS
I316	SERVICE BATTERY CARRIER ASSEMBLIES

* SUPERVISORY, MANAGERIAL, AND TRAINING TASKS HAVE BEEN OMITTED

metal working tasks, and performing supply functions. The tasks listed in Table 29 should be reviewed by subject-matter and training specialists to determine if they should be included during the next STS revision.

Plan of Instruction (POI)

Based on previously mentioned assistance from technical school subject-matter specialists in matching tasks to the common and shredout-specific blocks of the AFS 472X1A/B/C/D POI, dated February 1982, a computer product was generated displaying the results of that matching process. Information furnished includes training emphasis (TE) and task difficulty (TD) ratings, as well as percent members performing data for first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) personnel. The current course is comprised of common blocks of instruction (3ABR47231A/B/C/D, Blocks I through IV), attended by all Special Vehicle Mechanics and four separate shredout-specific sections (3ABR47231A, 3ABR47231B, 3ABR47231C, and 3ABR47231D - Blocks V and VI) attended by members possessing the respective shredout. Because of this course construction, the common blocks of training will be discussed first, followed by an evaluation of the shredout-specific blocks of instruction.

Special Vehicle Mechanic Common POI (3ABR47231A/B/C/D - Blocks I through IV). Generally, the common blocks of instruction appear to be supported for members in all the shredouts, based on percentages of first-enlistment personnel performing the tasks or the high training emphasis ratings calculated for those tasks. Some objectives, however, within Blocks I and IV, do not appear to be supported by the data for two or more of the Special Vehicle Mechanic shredouts. Specificially, within Block IV, the objective relating to disassembling and reassembling an automatic transmission (objective 4c) was not supported across all the shredouts. The task (M439 Disassemble or assemble automatic transmissions) referenced to this objective did not reflect high training emphasis ratings and was performed by less than 30 percent of the personnel in each of the shredouts. Additionally, for the 472X1C (Materials Handling Equipment Mechanic) specialty, the tasks matched to objective 4b (disassemble and reassemble a torque converter) in Block VI were performed by less than 30 percent of the 472X1C members. The same was true on objective 6g in Block I (Fill out equipment work order and indirect man-hour labor time card forms) for the 472X1C (Materials Handling Equipment Mechanic) and 472X1D (Towing and Servicing Vehicle Mechanic) members. If, due to the nature of the tasks, structured training is judged necessary on the objectives discussed above, regardless of the low percent members performing, it may be more appropriate to shift training on these tasks from the resident course to OJT.

Numerous, apparently significant, nonvehicle-specific tasks with very high training emphasis rating across the shredouts and 30 percent or more 472X1A/B/C/D (Special Vehicle Mechanic) first-enlistment personnel performing were not matched to the POI. These are presented in Table 30 and were reviewed to determine if they were concentrated around a common function. The only trends noted were that four involved maintenance on hydraulic system components, three were related to wheel bearings maintenance, and three concerned transmission work. Although many of these tasks have average or below-average task difficulty ratings, the combination of high

TABLE 30

TASKS (WITH HIGH TRAINING EMPHASIS) NOT REFERENCED TO POI BLOCKS FOR TWO OR MORE OF THE SPECIAL VEHICLE MECHANIC SPECIALTIES (30 PERCENT OR MORE PERFORMING)

TASKS		FIRST-ENLISTMENT PERSONNEL			
		AFS 472X1A (N=84)	AFS 472X1B (N=96)	AFS 472X1C (N=145)	AFS 472X1D (N=144)
G193	LUBRICATE VEHICLES	81	75	86	88
H228	REMOVE OR INSTALL ENGINES	68	60	82	76
H229	REMOVE OR INSTALL EXPANSION PLUGS	48	37	57	56
H231	REMOVE OR INSTALL FLYWHEELS	52	52	72	71
I259	ADJUST VOLTAGE REGULATORS	55	57	43	47
I278	ISOLATE LIQUID QUANTITY INDICATOR SYSTEM MALFUNCTIONS	57	34	58	47
I298	REMOVE OR INSTALL IGNITION COILS	76	73	85	85*
J331	MANUFACTURE HYDRAULIC OR PNUEMATIC HOSES OR TUBING	61	59	61	51
J332	OVERHAUL HYDRAULIC CYLINDERS	46*	41	54	53
J337	REMOVE OR INSTALL HYDRAULIC CYLINDERS	61*	51	83	70
J338	REMOVE OR INSTALL HYDRAULIC PUMPS OR MOTORS	63*	38	68	67
J345	SERVICE HYDRAULIC SYSTEM FILTERS OF STRAINERS	69	43	77*	66*
K348	ADJUST AUTOMATIC CHOKES	63	44	55	52
K374	MANUFACTURE FUEL LINES OR FITTINGS	64	71	68	58
L404	FLUSH COOLING SYSTEMS	66	69	80	67
L426	REMOVE OR INSTALL WATER PUMPS	69	68	77	72
L430	TEST STRENGTH OF ANTIFREEZE SOLUTIONS	75	80	77	79
M432	ADJUST AUTOMATIC TRANSMISSION CONTROLS OR LINKAGES	54	53	44*	47
M462	REMOVE OR INSTALL TRANSMISSION SEALS OR GASKETS	46	50	61	57*
M464	SERVICE AUTOMATIC TRANSMISSIONS	67	55	61	58
N474	ADJUST WHEEL BEARINGS	66	59	68	74
N484	PACK WHEEL BEARINGS	87	87	88	87
N499	REMOVE OR INSTALL FRONT WHEEL BEARINGS	79*	74	81	81
N500	REMOVE OR INSTALL GREASE SEALS	60	58	72	69
O522	ADJUST PARKING BRAKES	82	84	96	89
O551	REMOVE OR INSTALL SELF-ADJUSTING BRAKE MECHANISMS	52	32	57	53

* REFERENCED TO THE POI FOR THE SPECIFIC SHREDOUT

training emphasis ratings and percent members performing data indicates structured training may be required and resident technical training could be supported for all the shredouts.

Firetruck Mechanic Specific POI (3ABR47231A - Blocks V and VI). Overall, the Firetruck-specific blocks of the POI appear to be well supported by survey data, based on percentages of 472X1A (Firetruck Mechanic) first-enlistment personnel performing tasks or the high 472X1A specific training emphasis ratings calculated for those tasks. One performance objective related to inspecting troubleshooting and maintaining traction and pump engines on a P-2R Firetruck (Item V 1b) did not have any tasks matched to it and, therefore, could not be evaluated. This item should be reviewed to determine if it should be included in the POI. Additionally, many tasks were not referenced to any POI objective. These tasks are displayed in Table 30 and listed at the end of the POI computer product in the training extract for Firetruck Mechanics (AFS 472X1A). Generally, tasks listed in both the table and displayed at the end of the computer product dealt with nonvehicle-specific functions. Training personnel and subject-matter specialists should review these tasks, especially those with high training emphasis ratings and high percent members performing, to determine if their inclusion in a resident training program is warranted.

Refueling Vehicle Mechanic Specific POI (3ABR47231B - Blocks V and VI). The Refueling Vehicle Mechanic specific section of the POI was also well supported by survey data. Tasks not referenced to the POI for the 472X1B (Refueling Vehicle Mechanic) members was the only area which needed review. Generally, these tasks were related to nonvehicle-specific functions, although two were refueling vehicle-specific in nature and dealt with hydrostatic tests. These tasks are presented in Table 30 and at the end of the POI computer product in the AFS 472X1B (Refueling Vehicle Mechanic) training extract and should be reviewed by training and subject-matter specialists to determine if inclusion in a resident training program is justified.

Materials Handling Equipment Mechanic Specific POI (3ABR47231C - Blocks V and VI). Most of the materials handling equipment specific objectives appear to be supported by survey data based on high 472X1C training emphasis ratings or percentages of first-term Materials Handling Equipment Mechanics (AFS 472X1C) performing the tasks. There is one objective related to inspecting and troubleshooting control circuits in electrical forklifts (Item V 7b) that had tasks referenced to it which were performed by less than 30 percent of the 472X1C (Materials Handling Equipment Mechanic) first-enlistment personnel. This objective should be reviewed to determine if training on these tasks should be shifted from the resident course to OJT. Additionally, numerous tasks with high 472X1C training emphasis ratings and 30 percent or more of the Materials Handling Equipment (AFS 472X1C) first-enlistment personnel performing were not matched to the POI blocks. These tasks are displayed in Table 30 and listed at the end of the POI computer product in the training extract for AFS 472X1C (Materials Handling Equipment Mechanic). Generally, tasks listed both in the table and displayed at the end of the computer product dealt with nonvehicle-specific functions. These tasks, especially those with high training emphasis ratings and high percent members performing, should be reviewed to determine if inclusion in a resident training course is warranted.

Towing and Servicing Vehicle Specific POI (3ABR47231D - Blocks V and VI). Generally, most of the towing and servicing vehicle-specific objectives appear to be supported, based on the tasks referenced to these objectives and the 472X1D training emphasis and percent members performing data. Two of the performance objectives did not have tasks referenced to them and, therefore, could not be evaluated. These objectives dealt with power train components on towing tractors (Item V 2c) and inspecting, troubleshooting, servicing, and adjusting the auxiliary engine clutch on a spray deicer vehicle (Item VI 2d). These items should be reviewed by training personnel and subject-matter specialists to determine if they should be included in the POI. Additionally, numerous nonvehicle-specific tasks were not referenced to the POI. These tasks are listed in Table 30 and at the end of the POI computer product in the AFS 472X1D (Towing and Servicing Vehicle Mechanic) training extract and should be reviewed to determine if inclusion in a resident training program is justified.

One additional item to note is that throughout each of the shredout-specific blocks, some objectives were supported by tasks which were not vehicle-specific in nature. These objectives dealt with such items as brake, hydraulic, and steering systems. If these systems vary greatly from vehicle to vehicle, the specialized training may be justified. If, however, the systems are similar between different types of vehicles, it might be better to cover these items in more depth in the common part of the course. Subject-matter specialists and training personnel should further evaluate the subject areas and tasks discussed above in an effort to resolve the necessity for training and the most effective method to accomplish it.

SUMMARY AND IMPLICATIONS

The special vehicle-specific training emphasis ratings reported in this study were collected to help Air Force training decision makers address the training needs of the Special Vehicle Mechanic specialties (AFSs 472X1A/B/C/D). The training emphasis data were compared with occupational information from the August 1982 Base Vehicle Equipment (AFS 472X0), Special Vehicle (AFSs 472X1A/B/C/D), General Purpose Vehicle (AFS 472X2), and Vehicle Body Mechanic (AFS 472X3) OSR to review the present training programs.

In determining training requirements, tasks performed and vehicles maintained by AFSs 472X1A/B/C/D (Special Vehicle Mechanic) first-enlistment personnel need to be carefully considered. First-enlistment members in each of these shredouts performed a wide variety of nonvehicle-specific tasks. The 472X1A (Firetruck Mechanic) and 472X1B (Refueling Vehicle Mechanic) first-term members, in addition to the nonvehicle-specific tasks, were performing tasks and maintaining vehicles consistent with their respective shredout designations. The same was true for the AFS 472X1C (Materials Handling Equipment Mechanic) members, except these members also maintained systems and components on a wide variety of different types of vehicles rather than just on materials handling equipment. The 472X1D (Towing and Servicing Vehicle Mechanic) first-enlistment personnel, on the other hand, did not specialize like mechanics in the other three shredouts. Very few Towing and Servicing Vehicle Mechanic (AFS 472X1D) first-term members perform tasks specific only to towing and servicing vehicles. These members perform the nonvehicle-specific tasks, not only on towing and servicing vehicles but on a wide variety of other types of vehicles and equipment. From the data, it would appear training for AFSs 472X1A, 472X1B, and 472X1C members should cover both the common nonvehicle-specific tasks performed and the vehicle-specific tasks for their respective shredouts. Since the 472X1D personnel are not specializing on one type of vehicle, training should concentrate on the nonvehicle-specific tasks they perform.

In this report, the current 472X1A/B/C/D STS, 47271 STS, and POIs for both the common and shredout-specific courses were reviewed. Recommendations were made for possible additions and changes to the training documents. One important issue, however, which should be addressed before training programs and documents are revised, is the question of cross-utilization of personnel among the vehicle maintenance specialties (see AFS 472XX OSR, August 1982). The greatest utilization problem for consistency with career ladder structure concerns AFS 472X0 (Base Vehicle Equipment Mechanic) and 472X1D (Special Vehicle Mechanic - Towing and Servicing Vehicles) members. Because of the way these members are utilized, cost-effectiveness of initial specialized training based on the ladder and shred designation is brought into question for AFSs 472X0 and 472X1D. Consolidation of AFSs 472X0 and 472X1D into one specialty, or some other combination would broaden the training requirements and, perhaps, would not solve the cost-effectiveness problem. A Utilization and Training workshop on all the vehicle-maintenance specialties may be necessary to address these utilization issues and to assess current and projected training needs and programs. At such a workshop, careful consideration should be given to

the need to get the right skill and experience for the specialized equipment repair to support operational units. Additionally, the impact on initial and on-the-job training of a reorganization, including the cost-effectiveness of broadening or narrowing the specialty structure, should be addressed.